

Chhattisgarh Swami Vivekanand Technical University, Bhilai

SCHEME OF TEACHING & EXAMINATION

B.E. IV SEMESTER ELECTRICAL & ELECTRONICS ENGINEERING.

S.No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Exam			Total Marks	Credit L+ (T+P) / 2
				L	T	P	Theory/Practical				
							ESE	CT	TA		
1	Electrical Engg.	324413 (24)	Electrical Network Analysis & Synthesis	3	1	-	80	20	20	120	4
2	Electrical Engg.	324412 (24)	Electro Magnetic Fields	3	1	-	80	20	20	120	4
3	Electrical Engg.	324416 (24)	Electrical Measurements & Measuring Instruments	3			80	20	20	120	3
4	Electrical Engg.	324415 (24)	Electrical Power System- I	3	1	-	80	20	20	120	4
5	Electronics & Telecom. Engg.	328413 (28)	Analog Electronic Circuits	3	1		80	20	20	120	4
6	Electronics & Telecom. Engg.	328414 (28)	Digital Electronic Circuits	3	1		80	20	20	120	4
7	Electrical Engg.	324424 (24)	Electrical Measurements & Measuring Instruments Lab			3	40		20	60	2
8	Electronics & Telecom. Engg.	328421 (28)	Analog Electronic Circuits Lab			3	40		20	60	2
9	Electronics & Telecom. Engg.	328422 (28)	Digital Electronic Circuits Lab			4	40		20	60	2
10	Electronics & Telecom. Engg.	328423 (28)	Programming Lab (C++ Language)			4	40		20	60	2
11	Humanities	300425 (46)	Health, Hygiene & Yoga			2			40	40	1
			Library			1					
			Total	18	5	17	640	120	240	1000	32

L- Lecture T- Tutorial
P- Practical , ESE- End Semester Exam
CT- Class Test TA- Teacher's Assessment

Note (1) : Duration of all theory papers will be of **Three Hours**.

Note (2) : Industrial Training of six weeks is mandatory for B.E. student . It is to be completed in two parts. The first part will be in summer after IV sem. after which students have to submit a training report which will be evaluated by the college teachers during B.E. V sem.

**CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester: 4th

Subject: Electrical Network Analysis And Synthesis

Total Theory Periods: 40

Total Marks in End Semester Exam: 80

Minimum number of Class tests to be conducted: 2

Branch: Electrical & Electronics Engg.

Code: 324413 (24)

Total Tut Periods: 12

UNIT I:

Network equation, formulation of network equations, initial conditions in networks and network solution with Laplace transformation, step, ramp and impulse functions, initial and final value theorem and convolution integral.

UNIT II:

Transform impedance and transform circuits, Thevenin's and Norton's theorem, duality, Fourier transform, discrete and continuous spectrum, relation and Laplace transforms.

UNIT III:

Network function for one-port and two-port, calculation of network function for ladder and general networks, poles and zeros with restrictions for driving point functions and transform functions, two-port parameters, stability by Routh-Harwitz criterion.

UNIT IV:

Identification of network synthesis, Brune's positive and real function (PRF), properties of PRF, testing of driving point functions, even and odd function, one terminal pair network driving point synthesis with LC elements, RC elements, Foster and Cauer form.

UNIT V: Filters

Low pass filters, high pass filters, band pass filters, band reject filters, Gain equalizer and delay equalizers, Butterworth filters, m-derived filters, constant k-filters, design of filters.

Text Books:

1. "*Network Analysis*", Valkenburg, PHI Pbs.
2. Circuit theory, Kurikose-PHI Pbs.

Reference Books:

1. "*Introduction To Network Synthesis*", Valkenburg, PHI Pbs.
2. "*Network Analysis And Synthesis*", Wadhwa, New Age Pbs.

**CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester: 4th

Subject: Electromagnetic Fields

Total Theory Periods: 40

Total Marks in End Semester Exam: 80

Minimum number of Class tests to be conducted: 2

Branch: Electrical & Electronics Engg.

Code: 324412 (24)

Total Tut Periods: 12

UNIT I:

Scalars and vectors, vector algebra, the Cartesian, circular cylindrical and spherical coordinate systems, transformations between coordinate systems, Coulomb's law, electric field intensity, electric field due to several charges, Gauss law and its application, divergence and divergence theorem, Maxwell's first equation, the vector operator ∇ and divergence theorem.

UNIT II: Electrostatics

Electric potential, potential at any point due to discrete and distributed charges, principle of superposition potential and field between two coaxial cylinders, potential between two conducting spherical shells, conservative property, potential gradient, electric dipole, current and current density, continuity of current, metallic conductors, conductor properties and boundary conditions for dielectric materials, boundary conditions for perfect dielectric materials, capacitance Poisson and Laplace equation, uniqueness theorem, examples of the solution of Laplace and Poisson's equations.

UNIT III: Magnetostatics

The steady state magnetic field, Biot Savart Law, Ampere's circuital Law, Curl, Stokes theorem, magnetic flux and magnetic flux density, scalar and vector magnetic potentials.

UNIT IV: Magnetic Force And Inductance

Force on a moving charge, force on a differential current element, force between differential current elements, force and torque on a closed circuit, magnetic materials, magnetization and permeability, magnetic boundary conditions.

UNIT V: Time Varying Field And Maxwell's Equations

Modification of Maxwell's equations under time varying conditions, displacement current, source free wave equation, power flow and energy, sinusoidal time varying field, Helmholtz equation, complex pointing vector, Boundary condition, relation between field theory and current theory.

Text Books:

1. "Engineering Electromagnetics", Hayt, TMH Pbs.
2. "Electromagnetic Field theory and transmission lines", Raju, Pearson.

Reference Books:

1. "Principle And Application Of Electromagnetic Fields", Robert Polnsey and Robert Collin.
2. "Fields and wave electromagnetics", Chang.
3. *Electromagnetic field*, Bhat, CBS Pbs.

**CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester: 4th

**Subject: Electrical Measurements And
Measuring Instruments**

Total Theory Periods: 40

Total Marks in End Semester Exam: 80

Minimum number of Class tests to be conducted: 2

Branch: Electrical & Electronics Engg.

Code: 324416(24)

Total Tut Periods: 12

UNIT I: Measurement Of Resistance

Classification of resistances (low, medium and high), measurement of resistance by volt drop method, loss of charge method, Wheatstone's bridge, Kelvin's double bridge, Megger and ohmmeter, AC Potentiometers and their use for calibration of meters (ammeter, voltmeter and wattmeter).

UNIT II: AC Bridges

Measurement of inductance (self and mutual) and capacitance by AC bridges: Hay's, Maxwell's, Anderson and Heaviside bridge and its modification, Wein's bridge for measurement of frequency, Wagner earthing device.

UNIT III: Detectors And Magnetic Measurement

Construction, theory and operation of D'Arsonval vibration galvanometer, flux meter, types of suspension method, measurement of BH flux by Lloyd Fisher Square and by CRO, determination of iron loss and permeability by AC potentiometer.

UNIT IV:

Classification, operation and working principle of PMMC, MI and dynamometer type instruments, controlling, damping and balancing devices, single-phase and three-phase electro-dynamometer power factor meter, frequency meters: electrical resonance type, electro-dynamometer, ratio-meter type. Phase sequence meter, maximum demand indicator, tri-vector detector meter.

UNIT V: Power And Energy Measurement

Construction and principle of operation of dynamometer and induction type wattmeter, measurement of power in a three-phase circuit by using single-phase wattmeter, wattmeter errors, low power factor wattmeter, testing of wattmeter, single and poly-phase energy meters, testing of energy meters.

Text Books:

1. "A Course In Electrical And Electronics Measurement And Instrumentation", Sawhney, Dhanpat Rai Pbs.
2. "Electrical Measurement And Measuring Instruments", Golding, CBS

Reference books:

1. "A Course In Electrical And Electronics Measurement And Instrumentation", J. B. Gupta. Kataria Pbs.
2. "Electric Measurements", Harris.

**CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester: 4th

Subject: Electrical Power System-I

Total Theory Periods: 40

Total Marks in End Semester Exam: 80

Minimum number of Class tests to be conducted: 2

Branch: Electrical & Electronics Engg.

Code: 324415(24)

Total Tut Periods: 12

UNIT I:

Over head lines: solid conductors, stranded conductors, bundled conductors, skin effect, proximity effects, inductance and capacitance of single-phase, three-phase single circuit and double circuit lines, concept of GMD, transposition of lines, effect of earth on capacitance of transmission lines.

UNIT II:

Transmission Lines: representation of transmission line, single line diagram, per unit quantity, Characteristics and performance of transmission lines, transmission lines as four terminal networks, nominal-T, nominal- π , equivalent-T, and equivalent- π representation of transmission lines, A, B, C, D constants, distributed parameters of long lines, hyperbolic solutions, Ferrantii effect, surge impedance loadings, power flow equations.

UNIT III:

Generator voltage control, line drop compensation by static capacitors and reactors, induction voltage regulators, control of voltage profile, control of active and reactive power, calculation of synchronous phase modifier capacity, on-load tap changing transformer, control cost in AC and DC system, basis of selection for line voltage, AC and DC distribution systems, voltage drop calculation.

UNIT IV:

Types of cables, insulation resistance of cables, capacitance of cables, dielectric stress, capacitance grading of cables, use of inter-sheaths, power factor of cables, sag and tension calculation.

UNIT V: Traveling Waves

Transients in power systems, wave equation, characteristic impedance, energy and power surge, velocity, traveling wave phenomenon in open circuited and short circuited lines, lines with series reactive termination, junction of two dissimilar lines, repeated reflections, Bewley's Lattice diagram.

Text Books:

1. "Elements of Power Systems", Stevenson, 4th Edition
2. "Power System Engineering", Nagrath Kothari, TMH Pbs.

Reference Books:

1. "A Course In Electrical Power", Soni, Gupta and Bhatnagar, Dhanpat Rai.
2. Electrical power systems, Ashfaq Hussain, CBS Pbs.
Electrical power systems, C. L. Wadhwa, New Age Pbs.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)**

Semester : **IV**

Subject: **Analog Electronic Circuits**

Total Theory Periods: **40**

Total Marks in End Semester Examination: **80**

Minimum number of Class tests to be conducted: **Two**

Branch: **Electrical & Electronics Engg.**

Code: **328413 (28)**

Total Tutorial Periods: **10**

UNIT-I

LOW FREQUENCY TRANSISTOR AMPLIFIER: Graphical Analysis of CE amplifier; h-parameter Models for CB, CE, CC configurations and their Interrelationship; Analysis and Comparison of the three Configurations; Linear analysis of Transistor Circuits: Miller's Theorem: Cascading: Simplified Models and Calculation of CE and CC Amplifiers; Effect of emitter Resistance in CE amplifiers: Cascode amplifiers: Darlington Pair, analysis of Single stage FET amplifier-CS and CD Configuration, FET as VVR.

UNIT-II

HIGH FREQUENCY TRANSISTOR AMPLIFIERS: CE hybrid- π model: Validity and parameter Variation: Current Gain with Resistive load: frequency response of a single stage CE Amplifier: Gain-Bandwidth product: CC stage High frequencies: Multistage Amplifiers: sources of Noise in Transistor Circuits; Noise Figure.

UNIT-III

MULTISTAGE AMPLIFIERS: Classification: Distortion in Amplifiers: Frequency Response: Bode plots: Step Response: pass band of Cascaded Stages: Response of a Two-stage RC Coupled Amplifier at Low and high frequencies: Multistage amplifiers: Sources of Noise in Transistor Circuits: Noise Figure.

UNIT-IV

FEEDBACK AMPLIFIERS: Classification: Feedback concept; Ideal Feedback amplifier: Properties of Negative Feedback Amplifier Topologies: Method of Analysis of Feedback amplifiers: Voltage series Feedback: Voltage series Feedback pair: Current series, Current shunt and Voltage shunt feedback; Effect of feedback on amplifier Bandwidth and stability.

UNIT-V

OSCILLATOR: Sinusoidal oscillator: phase shift oscillators, Wien Bridge oscillator: Resonant circuit oscillators: LC Collpit & LC Hartley, Amplitude Frequency and phase stability analysis of all Oscillators, General form of Oscillator Configuration; Crystal oscillator.

Name of Text Books:

1. Integrated Electronics – Millman & Halkias, TMH.
2. Microelectronics – Millman and Gabel, TMH.

Name of Reference Books:

Electronic Devices & Circuits – David A. Bell, PHI

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)**

Semester : **IV**

Subject: **Digital Electronic Circuits**

Total Theory Periods: **40**

Total Marks in End Semester Examination: **80**

Minimum number of Class tests to be conducted: **Two**

Branch: **Electrical & Electronics Engg.**

Code: **328414 (28)**

Total Tutorial Periods: **10**

UNIT - I

CODES: Binary codes: Introduction & usefulness, Weighted & Non-weighted codes, Sequential codes, self complementing codes, Cyclic codes, 8-4-2-1 BCD code, Excess-3 code, Gray code: Binary to Gray and Gray to binary code conversion, Error detecting code, Error correcting code, 7-bit Hamming code, ASCII code, EBCDIC code.

Realization of Boolean Expressions: Reduction of Boolean expressions using laws, theorems and axioms of Boolean Algebra, Boolean expressions and logic diagram, Converting AND/OR/Invert logic to NAND/NOR logic, SOP and POS Forms and their Realization.

UNIT -II

MINIMIZATION TECHNIQUES: Expansion of a Boolean expression to SOP form, Expansion of a Boolean expression to POS form, Two, Three & Four variable K-Map: Mapping and minimization of SOP and POS expressions. Completely and Incompletely Specified Functions - Concept of Don't Care Terms; Quine – Mc Clusky Method.

UNIT III

COMBINATIONAL CIRCUITS: Adder & Subtractor: Half adder, Full adder, half subtractor, Full subtractor, Parallel Binary adder, Look Ahead carry adder, Serial adder, BCD adder. Code converter, Parity bit generator/Checker, Comparator. **Decoder:** 3-line to 8-line decoder, 8-4-2-1 BCD to Decimal decoder, BCD to Seven segment decoder. **Encoder:** Octal to binary and Decimal to BCD encoder. **Multiplexer:** 2-input multiplexer, 4-input multiplexer, 16-input multiplexer **Demultiplexer:** 1-line to 4-line & 1-line to 8-line demultiplexer, Multiplexer as Universal Logic Function Generator, Programmed Array Logic (PAL).

UNIT - IV

SEQUENTIAL CIRCUITS: Flip-Flops & Timing Circuit: S-R Latch; Gated S-R Latch; D Latch; J-K flip-Flop; T Flip-Flop; Edge Triggered S-R, D, J-K and T Flips-Flops; Master - Slave Flip-Flops; Direct Preset and Clear Inputs. **Shift Registers:** PIPO, SIPO, PISO, SISO, Bi-Directional Shift Registers; Universal Shift register. **Counter:** Asynchronous Counter: Ripple Counters; Design of asynchronous counters, Effects of propagation delay in Ripple counters, Synchronous Counters: 4-bit synchronous up counter, 4-bit synchronous down counter, Design of synchronous counters, Ring counter, Johnson counter, Pulse train generators using counter, Design of Sequence Generators; Digital Clock using Counters.

UNIT - V

DIGITAL LOGIC FAMILIES: Introduction; Simple Diode Gating and Transistor Inverter; Basic Concepts of RTL and DTL; **TTL:** Open collector gates, TTL subfamilies, IIL, ECL; **MOS Logic:** CMOS Logic, Dynamic MOS Logic, Interfacing: TTL to ECL, ECL to TTL, TTL to CMOS, CMOS to TTL, Comparison among various logic families, Manufacturer's specification.

Text Book:

1. Fundamentals of Digital Circuits: A. Anand Kumar, PHI
2. Digital Integrated Electronics: H. Taub and D. Schilling: TMH

Reference Books:

1. Digital Fundamentals: Floyd & Jain: Pearson Education
2. Digital Electronics: A.P. Malvino: TMH.
3. Digital Circuits & Logic Design – LEE, PHI

**CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester: 4th

Branch: Electrical & Electronics Engg.

**Subject: Electrical Measurements &
Measuring Instrument Lab**

Code: 324424(24)

Total practical periods: 12

Total Marks in end Semester Exam: 40

List of experiments (minimum 10 experiments)

1. To determine unknown resistance or value resistance by Kelvin Bridge Method.
2. To determine unknown resistance R by Wheatstone Bridge Method.
3. To determine unknown inductance of a given coil by Maxwell Bridge Method.
4. To determine the inductance of the given coil by Anderson Bridge Method.
5. To determine unknown capacitance of a given capacitor by Desauty Bridge Method.
6. To determine capacitance of a given capacitor by Schering Bridge Method.
7. To determine the inductance by Owen's Bridge Method.
8. To determine unknown inductance by Hay Bridge Method.
9. To calibrate a given single phase induction type Energy Meter.
10. To find the phase sequence of the supply by the rotating type phase sequence meter.
11. To find the phase sequence of the supply by the Static type phase sequence meter.
12. To determine the unknown resistance R by Voltmeter-Ammeter Method.
13. To observe the B-H curve and hysteresis loop of agiven transformer core on CRO.
14. Determine the iron losses by Lloyad fisher square method.
15. Measurement of high resistance by using Meggar.
- 16.

Requirement:

1. Bridges
2. Oscillator.
3. Head Phone
4. Transformer, Variac
5. Voltmeter, Ammeter, Multimeters, Resistors
6. DC Supply
7. Lloyad Fisher Square
8. Meggar

Reference Book:

1. Electrical measurement & measuring instrument by A.K.Sawhney.
2. Electrical measurement & measuring instrument by Gupta

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)**

Semester : **IV**

Branch: **Electrical & Electronics Engg.**

Subject: **Analog Electronic Circuits Lab**

Code: **328421 (28)**

Total Practical Periods: **36**

Total Marks in End Semester Examination: **40**

Experiments to be performed: (minimum 10 experiments)

1. Static input characteristics curves of CE transistor.
2. Static out put characteristic curve CE transistor.
3. Static input characteristic curve of CB transistor.
4. Static output characteristic curve of CB transistor.
5. To design and study the frequency response of single stage CE transistor amplifier.
6. To study the frequency response of RC coupled double stage CE transistor amplifier.
7. To study the frequency response of RC coupled double stage CE transistor amplifier with voltage feedback.
8. To study the frequency response of RC coupled double stage CE transistor amplifier with current feedback.
9. To plot the voltage gain vs. load characteristics of common collector (emitter follower) n-p-n transistor.
10. To study Wein Bridge Oscillator.
11. Experiment with emitter follower a voltage series feed back amplifier.
12. General study of pushpull audio power amplifier.
13. To study RC phase shift oscillator.
14. Study of various topologies of feedback amplifier.
15. Experiment with Darlington pair amplifier.

List of Equipments/Machine Required:

Circuit components, Power supply, CRO, Function generator, Multimeter, Breadboard.

Recommended Books:

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)**

Semester : **IV**

Subject: **Digital Electronic Circuits Lab**

Total Practical Periods: **36**

Total Marks in End Semester Examination: **40**

Branch: **Electrical & Electronics Engg.**

Code: **328422 (28)**

Experiments to be performed: (minimum 10 experiments)

1. To Verify The Properties of NOR & NAND Gates As Universal Building Block.
2. Realization of Boolean Expression Using NAND Or NOR Gates.
3. To Construct X- OR Gate Using Only NAND Or NOR Gates Only.
4. To Construct A Half Adder Circuit. And Logic Gates And Verify its Truth table.
5. To Construct A Full Adder Circuit. And Verify its truth table (Using Two X-OR And 3 NAND Gates).
6. To Construct A Half Subtractor Circuit. By Using Basic Gates And Verify its truth table.
7. To Construct A Full Subtractor Circuit By Using Basic Gates And Verify its truth table.
8. To Construct A Circuit of 4 -Bit Parity Checker & Verify its truth table.
9. To Construct A Programmable Inverter Using X-OR Gates & Verify its truth table.
10. To Design A Comparator Circuit & Verify its truth table.
11. To Construct A RS Flip Flop Using Basic & Universal Gates (NOT,NOR & NAND)
12. To Construct A J.K. Master Slave Flip Flop & Verify its truth table
13. To Verify The Operation of A Clocked S-R Flip Flop And J. K. Flip Flop
14. To Construct A T & D Flip Flop Using J. K. Flip Flop And Verify Its Operations & truth table.
15. To Verify The Operation of A Synchronous Decade Counter
16. To Verify The Operation of Various Decoding And Driving Devices
17. To perform the operation of BCD Counter Using 7490

List of Equipments/Machine Required:

Circuit components, Power supply, CRO, Function generator

Recommended Books:

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI (C.G.)**

Semester : IV

Branch: **Electrical & Electronics Engg.**

Subject: **Programming Lab (C++ Language)**

Code: **328423 (28)**

Total Practical Periods: **36**

Total Marks in End Semester Examination: **40**

List of Programmes to be performed (but not less than 10)

1. Write a program to define three functions with the same name area() ,taking one , two and three arguments respectively. The function taking one argument will consider it as the side of a square and calculate area, the function with two argument will consider it the sides of a rectangle and the function with three arguments will consider will calculate the area of a cuboid.
2. Write a program to define a function a function power that will take two arguments base and exponent and return the value of base raised to the power exponent. The function should have a default value of base as 10.
3. Create a class FLOAT that has one data member float. Perform all arithmetic & relational operation for FLOAT class.
4. Write a program to define a class Complex that will simulate the Complex numbers of mathematics, containing real and imaginary as the data members. Define suitable constructors and a function that will display the data members.
5. Create a class for making a student's mark-sheet & include a static data member total marks to calculate average marks of a particular class.
6. Write a program to define two classes Alpha and Beta containing an integer each as data members. Define a function Sum() that will be a friend to both Alpha and Beta ,that will take one object from each class as argument and return the sum of the data members of the argument objects.
7. Write a Program to define a class Complex that will contain real and imaginary as the data members. Define appropriate constructors and a display function. Overload the binary + and the * operator to add and multiply two complex numbers respectively.
8. Write a program to define a class time that will represent a time period in minutes and seconds. Overload the following operators for the following:
 - i. ++ Operator that will increment the seconds by 1
 - ii. + Operator that will add two objects of time class
9. Write a program to overload the comma operator for a class such that for the instruction a = (b,c) the larger object of and b is assigned to a
10. Write a program to define a class Base that will contain a protected integer data member and inherit this class in class called Derived. Override the display function of Base class and add a new member function in the Derived class so that it returns the factorial of the Base class member.
11. Write a program to define an abstract class Person that will contain the essential information like name, age and sex of a person. Now derive two classes Student and Employee both from the class Person. The class Student will contain the academic information such as roll number; school etc. and the class Employee will contain information such as department and salary. In the main function declare and array of Person pointers that can hold the address of either Student or Employee object. The program will ask the user to enter the details of Students/Employees, create dynamic objects of these classes using new operator and store them in the array. The program will then display the contents of these objects.
12. Write a program to that will ask the user to enter a file name and a line of text and transfer that line of text into a text file as named by the user.
13. Write a program that will ask the user to input a file name and copy the contents of that file into another file.
14. Write a program that will ask the user to enter the details of 5 employees and transfer the details into a binary file named as Emp.dat. Write another file that will read the details and print it.

15. Write a program that will take the details of 10 students as input and transfer it into a binary file. Write another program that will provide a menu to the user for the following purposes:
- i. To display details of all the students
 - ii. To display details of all the students having total marks greater than a given value
 - iii. To sort the file on the basis of Roll number of students
 - iv. To sort the file on the basis of Total marks of students
 - v. To update the record for a particular student
 - vi. To delete the record for a particular student
 - vii. To search the details of a particular student on the basis of Roll number or Name

List of Equipments/Machine Required:

PCs, C++ Compiler

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

Semester : B.E. IV Sem.

Branch: Common for all branches

Subject : **HEALTH, HYGIENE & YOGA**

Code : 300425 (46)

No. of Periods : 2 pds/week

Tutorial Periods : NIL

Total Marks in End Semester Exam. : NIL

Teacher's Assessment: 40 Marks

Minimum number of class tests to be conducted: Two

UNIT- I

HEALTH & HYGIENE: Concept of health, Physical health and mental health and wellbeing and how to achieve these, longevity and how to achieve it, concept and common rules of hygiene, cleanliness and its relation with hygiene; Overeating and undereating, amount of food intake required, intermittent fasting; adequate physical labour, sleep; consumption of junk fast food vs nutritious food; fruits, vegetables cereals and qualities of each of these.

UNIT- II

INTRODUCTORY KNOWLEDGE OF COMMON STREAMS OF MEDICINAL CURE: History, development, basic concepts, modes of operation of Allopathy, Ayurved, Homoeopathy, Biochemic, Unani, Siddha, Acupuncture, Naturopathy, Yogic and Herbal system of medicines, Introduction of Anatomy and Physiology concerned.

UNIT- III

YOGASANS: Meaning and concept of Yoga, Yogasans and its mode of operation, How to perform Yogasans, Common Yogasans with their benefits, such as, Padahastasan, Sarvangasan, Dhanurasan, Chakrasan, Bhujangasan, Paschimottasan, Gomukhasan, Mayurasan, Matsyasan, Matsyendrasan, Pawanmuktasan, Vajrasan, Shalabhasan, Sinhasan, Shashankasan, Surya Namaskar, Halasan, Janushirasan, Utshep Mudra,

UNIT- IV

YOGASANS FOR COMMON DISEASES: From Yogic Materia Medica with symptoms, causes, asans and herbal treatment.

- **Modern silent killers:** High blood pressure, diabetes and cancer, causes and cure; Common health problems due to stomach disorders, such as, indigestion, acidity, dysentery, piles and fissures, arthritis, its causes, prevention and cure.
- **Asans for relaxation:** Shavasana, Makarasana, Matsyarakrisana, Shashankasan.
- **Asans to increase memory and blood supply to brain :** Shirsh padasan, Shashankasan.
- **Asans for eye sight:** Tratak, Neti Kriya .
- **Pranayam :** Definition and types : Nadi Shodhan, Bhastrik, Shitakari, Bhramari useful for students.

UNIT V

CONCENTRATION: Concentration of mind and how to achieve it. Tratak [1/4=kVd1/2] Concentration on breath, Japa [1/4ti1/2] Ajapajap [1/4vtikti1/2] internal silence [1/4vUrekSZu1/2] visualization in mental sky [1/4fnpkdk'k /kkj.kk1/2] Concentration on point of light [1/4T;ksfr /;ku1/2] Concentration on feeling [1/4Hkko /;ku1/2] Concentration on figure [1/4ewÜkZ /;ku1/2-

REFERENCES

- (1) Yogic Materia Medica
- (2) Asana, Pranayama and Bandha