Sri Satya Sai University of Technology & Medical Sciences, Sehore (M.P.)

Syllabus of Examination
Six Semester - Bachelor of Science -(Computer Science)

Subject **Foundation Course** (आधार पाठ्यक्रम) **I**
Paper: नैतिक मूल्य और भाषा **(Moral Values & Languages)**
Code: FC 605

Unit – 1	नैतिक मूल्य १ण सत्य के साथमेरेप्रयोग (महात्मा गांधी की आत्मकथाकासंक्षिप्त संस्करण)	
Unit – 2	हिन्द ी भाषा १. आत्मनिर्भरता (वैचारिक निबंध)–पंड़ितबालकृष्ण भट्ट २. गूलरकाफूल (एक अरण्य कथा) –कुबेरनाथराय ३. मध्यप्रदेश की लोककलाएँ (संकलित) ४. मध्यप्रदेशकालोकसाहित्य (संकलित) ५. पत्र लेखन–प्रारूपण, टिप्पण, आदेश , परिपत्र, ज्ञापन, अनुस्मारक (संकलित)	
Unit – 3	हिन्दी भाषा १. पूछो न प्रात की बातआज (चिंतनपरक) –रमेशचन्द्र शाह २. गेहूँ औरगुलाब (वैचारिक निबंध)–रामवृक्ष बैनीपुरी ३. दूरभाषऔरमोबाइल (संकलित) ४. मध्यप्रदेश की चित्रकला, मूर्तिकला एवंस्थापत्य कला (संकलित) ५. हिन्दी की शब्दसम्पदा (संकलित)	
Part – B		
Unit – 4	**English Language** 1. Stopping by Woods On a Snowy Evening : Robert Frost 2. Communication Education and Information Technology : K. Adudiopillai 3. The Gift of Magi : O Henry 4. The Cherry Tree : Ruskin Bond	
Unit 5	**English Language** Translation of a short passage From Hindi to English and English to Hindi Communication through Social media Preparation of Power point Presentation **Basic Language skills:** Correction of common errors in the sentence Structure, use of tense, Preposition, Verbs, adverbs, nouns, pronouns and articles. Short essay on a given topic, Expansion of idea and summary writing.	

Reference Book

Moral Values & Languages, Hindi Granth Academy, MP

Sri Satya Sai University of Technology & Medical Sciences, Sehore (M.P.)

Syllabus of Examination

Six Semester - Bachelor of Science -(Computer Science)

Foundation Course

Paper: Basics of Computer App. & Information Technology

Code: FC 606

Unit-I: PowerPoint-I

• Creating presentation using Slide master and Template in various Themes & Variants.
• Working with slides: New slide, move, copy, delete, duplicate, slide layouts, Presentation views.
• Format Menu: Font, Paragraph, Drawing & Editing.
• Printing presentation: Print slides, notes, handouts and outlines.
• Saving presentation in different file formats.

Unit-II: PowerPoint-II

• Idea of Smart Art graphics, inserting text/data using SmartArt, Converting old style presentation into new style through Smart Art.
• Inserting objects (Video, Audio, Symbol, Equation, etc.), table & excel sheets, picture, chart, photo album, shapes and Smart Art; Trimming of audio/videos.
• Connecting slides through hyperlink and action button.
• Slide sorter, slide transition and animation effects.
• Presenting the slide show: Setup Slide Show, Rehearse Timing.

Unit-III: MS Excel

• Workbook & Worksheet Fundamentals: Concept of Row, Column & Cell; Creating a new workbook through blank & template.
• Working with worksheet: Entering data into worksheet (General, Number, Currency, Date, Time, Text, Accounting, etc); Renaming, Copying, Inserting, deleting & protecting worksheet.
• Working with Row & Column (Inserting, Deleting, Pasting, Resizing & Hiding), Cell & Cell formatting, Concept of Range.
• Charts: Preparing & editing different types of Charts, Inserting trendline, Backward & forward forecasting.
• Working with formulas: Formula bar; Types of functions; Syntax & uses of the following functions: SUM, TOTAL, COUNT, AVERAGE, MAX, MIN, ROUND & IF.

Unit-IV: Internet & Web Services

• Internet: World Wide Web, Dial-up connectivity, leased line, VSAT, Broad band, WiFi, URL, Domain name, Web Browser (Internet Explorer, Firefox, Google Chrome, Opera, UC browser, etc.); Search Engine (Google, Bing, Ask, etc.); Website: Static & Dynamic; Difference between Website & Portal.
• E-mail: Account Opening, Sending & Receiving Mails, Managing Contacts & Folders.
• Basics of Networking: Types of Networks (LAN, WAN, MAN); Network Topologies (Star, Ring, Bus, Hybrid).
• Elementary idea of - Cloud Computing & Office Web Apps, Mobile Computing & Mobile Apps.

Unit-V: Cyber Ethics, Security & Privacy

• Email, Internet & Social Networking Ethics

- Types of viruses & antivirus
- Computer security issues & its protection through Firewall & antivirus

SUGGESTING READING-

1. COMPUTER SCIENCE AND INFORMATION TECHNOLOGY- S.K.VIJAY AND PANKAJ SINGH- BOOKS
OF HINDI GRANTH ACADEMY
2. COMPUTER STUDY –PANKAJ SINGH

Sri Satya Sai University of Technology & Medical Sciences, Sehore (M.P.)

Syllabus of Examination

Six Semester - Bachelor of Science -(Computer Science)

Computer Science
Paper: Web Design
Code: BSC 601B

Unit – I
Introduction to Internet &World Wide Web, Internet Addressing, Browsers, URL, Web Server, Web Site, Homepage, Domain Names- Basic Concept.
Introduction to HTML- HTML Overview, Structure, Structure of HTML documents, Types of Documents, HTML Elements and Attributes. Basic Formatting of HTML documents layout-
Font Lists, Paragraph, Break Rule, Horizontal Rule, Colors, Background, text elements, <PRE>, etc.

Unit- II
Links in html –anchor elements and its attributes, images and anchors, using META information. HTML Media Types – media like elements <MARQUEE>, Audio& Video support in Web browsers. Table – layout. Elements and attributes, ROWSPAN, COLSPAN. Frames – using frames, layout of frame, problems using frames.

Unit- III
Layers- Concept of layers, Positioned and Inflow Layers.Style Sheets – Basic Concept of Style sheet, using style sheet, Cascading style sheet(css), using style sheets- basic and properties, Positioning with style sheets.

Unit –IV
Basic Interactivity in html: Forms- Concept of Forms ,<FORM> elements, attributes, Controls used for forms, examples of form design. Web Publishing – Concepts. Scripting- Purpose of scripting, specifying
scripts & designing events.

Unit – V
DHTML : Overview of DHTML and Document objects Model, html & Scripting access, rollover buttons. XML: Basic XML Structure, ways to use XML, rewriting html as xml. PHP (Hypertext Preprocessor):
Introduction, syntax, Variables, Strings, Operators, if-else, loop, form , mail, file upload introduction to ASP. NET

TEXT BOOKS:

- The Complete Reference to HTML- by Thomas A Powell, TMH, II Edition.
- Using HTML – by lee Anne Phillips, PHI
- “Web Technology and Design”, Xavier, New age International
- Ullman, “PHP for the Web” Visual Quick Start Guide”, Pearson Education
- PHP: beginner’s guide VikramVaswani McGraw Hill.

Sri Satya Sai University of Technology & Medical Sciences, Sehore (M.P.)

Syllabus of Examination

Six Semester - Bachelor of Science -(Computer Science)

Subject Physics

Paper: Solid State Physics and Devices

Code: BSC 602A

Unit-I: SOLID STATE PHYSICS-1

Crystal Structure and bonding: Crystalline and amorphous solids. Translational symmetry. Lattice and basis. Unit cell. Reciprocal lattice. Fundamental types of lattices (Bravias Lattice). Miller indices Lattice planes. Simple cubic. Face centered cubic. Body centered cubic lattices. Laue and Bragg's equations. Determination of crystal structure with X-rays, X-ray spectrometer. Ionic, covalent, metallic, van der Waals and hydrogen bonding. Band theory of solids. Periodic potential and Bloch theorem. Kronig-Penny model (Qualitative).

Unit-II: SOLID STATE PHYSICS-2

Lattice structure and properties: Dulong Petit, Einstein and Debye theories of specific heats of solids. Elastic and atomic force constants. Dynamics of a chain of similar atoms and chain of two types of atoms. Optical and acoustic modes. Electrical resistivity. Specific heat of electron. Wiedemann-Franz law. Hall effect. Response of substances in magnetic field, dia-, para- and ferromagnetic materials. Classical Langevin theory of dia and paramagnetic domains. Curie's law. Weiss' theory of ferromagnetism and ferromagnetic domains. Discussion of BH hysteresis.

Unit-III: SEMICONDUCTOR DEVICES-1

Electronic devices: Types of Semiconductors (p and n). Formation of Energy Bands, Energy level diagram. Conductivity and mobility. Junction formation, Barrier formation in p-n junction diode. Current flow mechanism in forward and reverse biased diode (recombination), drift and saturation of drift velocity. Derivation of mathematical equations for barrier potential, barrier width. Single p-n junction device (physical explanation, current voltage characteristics and one or two applications). Two terminal devices. Rectification. Zener diode. Photo diode. Light emitting diode. Solar cell. Three terminal devices. Junction field effect transistor (JFET). Two junction devices. Transistors as p-n-p and n-p-n. Physical mechanism of current flow. Characteristics of transistor.

Unit-IV: SEMICONDUCTOR DEVICES-2

Amplifiers (only bipolar junction transistor). CB, CE and CC configurations. Single stage CE amplifier (biasing and stabilization circuits), Q-point, equivalent circuit, input impedance, output impedance, voltage and current gain. Class A, B, C amplifiers (definitions). RC coupled amplifiers (frequency response). Class B push-pull amplifier. Feedback amplifiers. Voltage feedback and current feedback. Effect of negative voltage series feedback on input impedance. Output impedance and gain. Stability, distortion and noise. Principle of an Oscillator, Barkhausen criterion, Colpitts, RC phase shift oscillators. Basic concepts of amplitude, frequency and phase modulations and demodulation.

Unit-V: NANO MATERIALS

Nanostructures: Introduction to nanotechnology, structure and size dependent properties. 3D, 2D, 1D, 0D

nanostructure materials and their density of states, Surface and Interface effects. Modelling of quantum size effect. Synthesis of nanoparticles - Bottom Up and Top Down approach, Wet Chemical Method. Nanolithography. Metal and Semiconducting nanomaterials. Essential differences in structural and properties of bulk and nano materials (qualitative description). Naturally occurring nano crystals. Applications of nanomaterials.

References:

1 Introduction to Solid State Physics, C. Kittel, VIII th Edition, John Wiley and Sons, New York, 2005.

2 Intermediate Quantum theory of Crystalline Solids, A. O. E. Animalu, Prentice−Hall of India private Limited, New Delhi 1977

3 Solid State Physics, N. W. Ashcroft, and N. D. Mermin, Harcourt Asia (P) Ltd. 2001

4 The Physics and Chemistry of Nanosolids: Frank J. Owens, and Charles P. Poole Jr., Wiley Inter Science, 2008.

5 Physics of Low Dimensional Semiconductors: An introduction; J.H. Davies, Cambridge University Press, U.K., 1998.

Sri Satya Sai University of Technology & Medical Sciences, Sehore (M.P.)

Syllabus of Examination

Six Semester - Bachelor of Science -(Computer Science)

Subject: Mathematics

Paper: Real Analysis, Discrete Mathematics and Elementary Statistics

Code: BSC603A

Unit-1

Riemann integral, Algebra of Riemann integrable functions, Integrability of continuous and monotonic functions, The fundamental theorem of integral calculus, Mean value theorems of integral calculus.

Unit-2

Definition and examples of metric spaces, Neighbourhoods, Limit points, Interiorpoints, Open and closed sets,

Closure and interior, Boundary points, Subspace of ametric space, Cauchy sequences, Completeness, Cantor's intersection theorem,Contraction principle, Real numbers as a complete ordered field, Definition ofContinuous functions and its illustrations.

Unit-3

Algebra of Logic, Tautologies and Contradictions, logical equivalence, Algebra of propositions, Quantifiers: Universal and Existential Quantifiers, Boolean Algebra and its properties, Demorgan's law, Algebra of Electric circuits and its applications.

Unit-4

Boolean Function, Disjunction and Conjunction Normal Forms, Bools Expansion Theorem. Binary Relations, Equivalence Relations, Partitions and Partial Order Relation.

Unit-5

Elementary Statistics

Probability, Continuous probability, probability density function and its applications(for finding the mean, mode, median and standard deviation of various continuous probability distributions) Mathematical expectation, expectation of sum and product of random variables, Moment generating functions, Theoretical distribution: Binomial, Poisson distributions and their properties and uses.

Reference Book:-

1. R.R Goldberg, Real Analysis, Oxford & IBH Publishing Co., New Delhi, 1970.
2. G.F. Simmons. Introduction to Topology and Modem Analysis. McGraw-Hill,1963.
3. T.M Apostol, Mathematical Analysis. Norosa Publishing House. New Delhi, 1
4. C.L. Liu,Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, Computer Science scries 1986.

1. T.M Apostol, Mathematical Analysis. Norosa Publishing House. New Delhi, 1985.
2. S. Lang. Undergraduate Analysis, Springer-Veriag, New York, 1983.
3. D. Somasundaram and B. Choudhary, A first Course in Mathematical Analysis. Narosa Publishing House, New Delhi 1997.
4. Shanti Narayan, A Course of Mathematical Analysis. S. Chand & Co. Delhi.
5. RK. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi 2000.

6. P.K. Jain and K. Ahmed Metric Spaces, Narosa Publishing House, New Delhi,1996.
7. S. Lang, Undergraduate Analysis, Springer-Verlag, New York 1983.
8. E.T. Copson, Metric Spaces, Cambridge University Press, 1968
9. S. Lang. Undergraduate Analysis, Springer-Veriag, New York, 1983.