Detailed Course Scheme
Bachelor of Technology (B.Tech)
(Common to All Branches)

DOC201706160007

Semester – I
(2017-21)

RNB GLOBAL UNIVERSITY

RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd(July-December) and Even (January-June).**Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B.Tech for Odd Semester (July-December) 2017 along with examination pattern is as follows:

Semester -I

S. No.	Course Code	Course Title	Credits
1.	19002200	Introduction to Programming with C	3
2.	19002300	Programming with C Lab	1
3.	19000800	Electronics and Electrical Technology	4
4.	19000900	Electronics and Electrical Technology Lab	1
5.	19000600	Manufacturing Processes	2
6.	19000700	Manufacturing Process/Workshop Lab	2
7.	19000100	Applied Mathematics- I	4
8.	19000200	Applied Physics-I	4
9.	19000300	Applied Physics-I Lab	1
10.	19001100	Ability & Skill Enhancement Module - I	2
11.	99002200	Business Communication	4
12.	99002000	NSS/NCC /Similar Activities	-
13.	99002100	Club Activities	-
14.	99001700	Seminar	1
Total Credits			**29**

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and

external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

Internal Assessment

Area of Assessment	Marking	Maximum Marks
Sessional-I	As per marks obtained	10
Sessional-II	As per marks obtained	10
Assignment + Presentation	15	15
Overall Conduct and Discipline	To be decided by concerned Faculty Member	5
Attendance	Student with 80% attendance will get 5 marks and 0.25 marks for every 1% attendance above 80 %	10
Total		**50**

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

Internal Assessment

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	35
Discipline	To be decided by concerned faculty	5

Attendance	80% - 5 marks and 0.25 percent for every one percent above 80 %	10
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- NSS/NCC AND CLUB ACTIVITIES

1. NSS/NCC will be evaluated internally.

2. The students have to join club/clubs with the active participation in different activities of club. The students would be continuously assessed

CURRICULUM

Course Name: Introduction to Programming with C

Course Code: 19002200

Course Outline:

Unit I: Introduction to Programming: Concept of algorithms, Flow Charts, Data Flow diagrams etc., Introduction to the Editing tools such as vi or MS-VC editors, Concepts of the finite storage, bits bytes, kilo, mega and gigabytes. Concepts of character representation, Number Systems & Binary Arithmetic. Introduction to C History of C Overview of Procedural Programming

Unit II: C Programming Basic: Data Types, Variables, Constants, Operators and Basic I/O: Declaring, Defining and Initializing Variables, Scope of Variables, Using Named Constants, Keywords, C Data Types: int, char, float, etc, Casting of Data Types, C expressions, arithmetic operation, relational and logic operations, Using Comments in programs, Character I/O (getc, getchar, putc, putcharetc),Formatted and Console I/O (printf(), scanf()), Using Basic Header Files (stdio.h, iostream.h, conio.hetc), Using main() function, Example of some simple C program. C – Operators- Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Assignment Operators

Unit III Expressions, Conditional Statements and Iterative Statements: C - Decision Making Statements, conditional executing using if, else. Understanding syntax and utility of Iterative Statements (while, do-while, and for loops), Use of break and continue in Loops, Using Nested Statements (Conditional as well as Iterative)

Unit IV: Functions and Arrays: Utility of functions, call by Value, call by Reference, Functions returning value, Functions with variable number of Arguments. Creating and Using One Dimensional Arrays (Declaring and Defining an Array, initializing an Array, accessing individual elements in an Array, manipulating array elements using loops), Two dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns), Introduction to Multi-dimensional arrays.

Unit V: Pointers Understanding a Pointer Variable, Simple use of Pointers (Declaring and Dereferencing Pointers to simple variables), Pointers to Pointers, Passing pointers as function arguments, Returning a pointer from a function, using arrays as pointers, Passing arrays to functions, Structures and Unions,

Suggested Readings:

1. Ashok N. Kamthane, "Computer Basics and C Programming", Pearson Education.
2. E. BalaGuruswamy, "Programming in ANSI C", 2008.
3. V Rajaraman, "Computer Basics and C Programming", PHI.
4. Herbert Schildt, "C The Complete Reference" Fourth Edition, 2000.
5. YashwantKanetkar, "Let us C" eighth edition, 2002.
6. Kernighan and d. Ritchie, "The ANSI C Programming Language", 2000.
7. StephennPrata, "C Primer Plus" Fourth Edition, 2001.
8. Schaum's Outline Series, "Programming with C", 2nd Edition, 1996.

Course Name: Programming with C Lab

Course Code: 19002300

Course Outline

List if Experiments (Not limiting to)

[1]   Write a program sum of two numbers

[2]   Write a program to check either the number is even or odd

[3]   Write a program calculate simple interest.

[4]   Write a program to calculate the marks of four subject and percentage.

[5]   Write a program to check either the year is leap year or not.

[6]   Write a program to find out the grade using if/else if statement.

[7]   Write a program to find out the greater number between two number.

[8]   WAP to read base and height of a triangle, calculate the area using formula :

Area =1/2*base*height

[9]   WAP to read marks obtained and maximum marks of a student and calculate its percentage and display it.

[10]   Write a program to print even number up to n.

[11]   Write a program to print odd number up to n.

[12]   Write a program to print table.

Course Name: Electronics and Electrical Technology

Course Code: 19000800

Course Outline:

Unit I: Introduction: Basic electrical quantities, Electric circuit sources and circuit elements and their behavior (Active and passive). **Supply Systems:** AC Supply system (Single phase, Three phase–three wire, Threephase–four wire), DC supply system, Their specifications and Comparison. D.C. Networks: Mesh and Nodal Analysis, Star–Delta Transformation, Superposition theorem, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, Step voltage response of RL and RC series circuits.

Unit II: Sinusoidal Steady-State Response of Circuits: Concept of Phasors, Phasor representation of circuit elements, Complex notation representation, Series and parallel circuits, Power and power factors, Resonance in series and parallel circuits, Balanced 3phase voltage, Current and power relations, 3phase power measurement.

Unit III: Magnetic Circuits: Concept of Magnetic circuits, BH curve, Calculation of Magnetic Circuits, Iron Losses. **Single Phase Transformers:** Constructional feature, EMF equation, Ideal transformer, Open and short circuit tests, Voltage regulation and efficiency.

Unit IV: Rotating Electrical Machines: Construction, Operating principles and Applications of DC generator, DC motor, Three phase Induction motor and Single phase induction motors. **Electrical safety and Wiring:** Electrical safety and standards, House hold wiring and electric appliances.

Unit V: Energy Management: Conservation efforts, Auditing. **Electronic Devices:** P–N diode, BJT, SCR, FET, MOSFET, Their V–I characteristics and applications (Diode as rectifier, Zener diode as voltage regulator).

Suggested Readings:

1. Smith, I.M., Hiley, J. and Brown, K., Electrical and Electronic Technology, Dorling Kingsley (2007) 9th ed.
2. Nagrath, I.J. and Kothari, D.P., Basic Electrical Engineering, Tata McGraw–Hill (2002) 2nd ed.
3. Naidu, M.S. and Kamashaiah, S., Introduction to Electrical Engineering, TataMcGraw–Hill (2004).
4. Chakrabarti, A., Basic Electrical Engineering, Tata McGraw–Hill (2008).
5. Del Toro, V., Electrical Engineering Fundamentals, Prentice–Hall of India Private Limited (2008) 2nd edition.

Course Name: Electronics and Electrical Technology Lab

Course Code: 19000900

List of Experiments

1. To get familiar with working knowledge of the following Instruments

    (a) Cathode Ray Oscilloscope

    (b) The Multimeter Structure

    (c) Function generator f

    (d) Regulated power supply

2. Study of Electronic components and equipment

    (a) To measure phase difference between two waveforms using CRO.

    (b) To measure unknown frequency from lissajous figures using CRO.

3. Plot the forward and reverse V-I Characteristics of a PN junction Diode.

    (a) Calculation of cut in voltage

    (b) (Study of Zener diode in Breakdown region.

4. To plot and study the input and output chacterstics of BJT in Common Emitter Configuration.

5. To find the frequency response of given(RC coupled) Amplifier and calculate its bandwidth.

6. To get familiar with pin configuration of typical OP-AMP 741 and its use as:

    (a) Inverting amplifier

    (b) Non-Inverting amplifier

    (c) summing amplifier

    (d) difference amplifier

7. Use of OP-AMP as:

    (a) Integrator

    (b) Differentiator

8. Verification of Truth tables of logic gates(NAND, NOR, EX-OR, AND, OR, NOT).

9. Verification of Truth tables of Flip-Flops (S-R,J-K).

10. Verification of Thevenin's theorem

11. Verification of Superposition theorem

12. To get familiar with the working and use of seven segment display.

13. To Study Half – Wave Rectifier.

14. To study Light Emitting Diode

15. Residential house wiring using switches, fuse, indicator, lamp and energy meter.

    (a) Fluorescent lamp wiring.

    (b) Stair case wiring

16. Measurement of electrical quantities voltage, current, power & power factor in RLCcircuit.

17. Measurement of energy using single phase energy meter and measurement of resistance to earth of electrical equipment.

18. Resistor, colour coding measurement of AC signal parameter (peak-peak, rms period, frequency)using CRO and Multimeter.

Suggested Readings

1. KJeyachandran, S.Natarajan & S, Balasubramanian, "A Primer on engineeringpractices Laboratory", Anuradha Publications, (2007).
2. T.Jeyapoovan, M.Saravanapandian & S.Pranitha, "Engineering Practices Lab Manual ", Vikas Puplishing House Pvt.Ltd, (2006)
3. H.S. Bawa, "Workshop   Practice", Tata mcgraw –Hill   Publishing   Company Limited,(2007).
4. Rajendra Prasad & P.M.M.S. Sarma, "Workshop   Practice", Sree Sai Publication, (2002).

5. P.Kannaiah & K.L.Narayana, "Manual on Workshop Practice", Scitech Publications, (1999).

Course Name: Manufacturing Processes

Course Code: 19000600

Course Outline:

Unit I: Introduction: Common engineering materials and their important mechanical and manufacturing properties. General classification of manufacturing processes. Metal casting: Principles of metal casting, Patterns, their functions, types, materials and pattern allowances, Characteristics of molding sand, Types of cores, chaplets and chills; their materials and functions. Moulds and their types. Requisites of a sound casting. Introduction to die casting.

Unit II: Metal forming and shearing: Forging, rolling, drawing, extrusion, bending, spinning, stretching, embossing and coining. Die and punch operation in press work, shearing, piercing and blanking, notching, and lancing,

Unit III: Machining Processes: Principles of metal cutting, cutting tools, their materials and applications, Geometry of single point cutting tool. Cutting fluids and their functions, Basic machine tools and their applications. Introduction to non-traditional machining processes (EDM, USM, CHM, ECM, and LBM).

Unit IV Joining processes: Electric arc, Gas, Resistance and Thermit welding, Soldering, Brazing and Braze welding, Adhesive bonding, Mechanical fastening (riveting, screwing, metal stitching, crimping etc.)

Suggested Readings:

1. "Processes and Materials of Manufacture", Lindberg, PHI
2. "Manufacturing Engineering And Technology", Kalpakjian and Schmid, Pearson
3. "Manufacturing Processes", Kalpakjian and Schmid, Pearson
4. "Manufacturing Processes", H. N .Gupta, R. C. Gupta, Arun Mital, New Age

Course Name: Manufacturing Processes/Workshop Lab

Course Code: 19000700

1. **Materials:** Spectrography method for finding composition of materials.

2. **Wood/Carpentry Working Shop:** Making of various joints, Pattern making.

3. **Foundary Shop:** Bench moulding with single piece pattern and two piece pattern.

    a. Floor moulding – Making of bend pipe mould etc.

4. **Machine moulding** – Making of mould using Match-plate pattern.

    a. Core making- Making and baking of dry sand cores for placing in horizontal, vertical and hanging positions in the mould cavity.

5. **Fitting Shop:** Learning use of fitting hand tools, marking tools, marking gauge.

    a. Exercises: Jobs made out of MS Flats, making saw – cut filling V-cut taper at the corners, circular cut, fitting square in square, triangle in square.

6. **Welding Shop:** Electric arc welding, Edge preparations, Exercises making of various joints. Bead formation in horizontal, vertical and overhead positions.

7. **Gas Welding:** Oxy-Acetylene welding and cutting of ferrous metals.

8. **Soldering:** Dip soldering.

9. **Brazing:** With Oxy-Acetylene gas.

10. **Sheet Metal Shop:** Learning use of sheet-metal tools, Exercises: Making jobs out of GI sheet metal. Cylindrical, Conical and Prismatic shapes.

11. **Black smithy Shop Aim: To make an S-hook from a given round rod, by following hand forging operation.**

12. **To make an S-hook from a given round rod, by following hand forging operation.**

13. **To make a Square rod from a given round rod, by following hand forging operation.**

14. **Project Shop**: Extrusion of soft metals, Plastic coating of copper wires, Plastic moulding.

Course Name: Applied Mathematics-I

Course Code: 19000100

Course Outline:

Unit I Successive Differentiation, Leibniz Theorem, Mean Value Theorems and Their Geometrical Interpretation. Cartesian Graphing with First and Second Derivatives, Asymptotes and Dominant terms, Graphing of Polar curves, Polar Equations for Conic Sections.

Unit II Introduction to Sequences, Infinite Series, Tests for Convergence/Divergence: Limit Comparison Test, Ratio Test, Root Test, Integral Test, Cauchy Condensation Test. Alternating series: Absolute Convergence and Conditional Convergence.

Unit III: Series Expansions: Power Series, Taylor Series, Integration, Differentiation, Multiplication and Division Process in Power Series, Partial Differentiation: Functions of Several Variables, Limits and Continuity, Chain Rules, Change of Variables, Partial Differentiation of implicit Functions. Taylor Series of Two Variables, Directional Derivatives and its Properties, Jacobian of Transformation. Maxima and Minima by Using Second Order Derivatives.

Unit IV: Vector Calculus: Rules for Differentiations, Tangent Vector, Velocity and Acceleration Vectors Normal Vector, Curvature and Torsion and TNB frame. Double Integrals, Change of Order of Integration, Change of Variables, Triple Integrals, Application of Multiple Integrals to Areas and Volumes.

Unit V: Gradient, Divergence, Curl, Line Integrals, Green's Theorem in Plane, Classification and Construction of Differential Equations, Exact Differential Equations, Riccati Equation, Claiurat Form.

Suggested Readings:
1. B. S. Grewal,"Higher Engineering Mathematics" Khanna Publications.
2. R. K. Jain and S.R.K. Iyengar,"Advanced Engineering Mathematics "Narosa Publications.
3. E. kresyzig," Advance Engineering Mathematics", Wiley publications
4. G.Hadley, " Linear Algebra" Narosa Publication
5. N.M. Kapoor, " A Text Book of Differential Equations", Pitambar publication.
6. Wylie R, " Advance Engineering mathematics" , McGraw-Hill
7. Schaum's Outline on Linear Algebra, Tata McGraw-Hill
8. Polking and Arnold, "Ordinary Differential Equation using MatLab" Pearson.

Course Name: Applied Physics -I

Course Code: 19000200

Course Outline:

Unit I Sound Waves: Introduction, Reverberation, Eyring's Formula, Absorption coefficient, Conditions for good acoustical design, Production and detection of ultrasonic waves and their applications.

Unit II Electromagnetic Waves: Introduction, Maxwell's equations in differential and integral forms, Concept of displacement current, Electromagnetic wave equations for free space, Conducting and dielectric medium, Poynting theorem, Concept of wave guides.

Unit III Light: Interference: thin films, wedge-shaped films, non-reflecting films, Newton rings, Michelson interferometer, Diffraction: single, double and multiple slits, Dispersive and resolving powers. Polarization, its production, and detection

Unit IV Quantum Mechanics: Origin of quantum hypothesis, de-Broglie hypothesis of matter waves, Uncertainty principle, Wave function and wave mechanics, Schrodinger equation: steady state form, Quantum mechanical operators, Expectation value, One dimensional solutions: zero potential, step potential, potential barrier and potential well.

Unit V: Laser: Basic concepts, Laser properties, Laser systems: ruby, Nd:YAG, He-Ne, excimer, and semiconductor lasers.

Suggested Readings:

1. David, J. G., Introduction to Electrodynamics, Pearson Education (2003).
2. Ghatak, A., Optics, Tata McGraw Hill Publishing Co. Ltd, New Delhi (2006).
3. Beiser, A., Concept of Modern Physics, Tata McGraw Hill Publishing Co. Ltd, New Delhi (2003).
4. Rajendran Baldev Raj and Palanichary P.V., Science & Technology of Ultrasonics Ist Edition, Narosa Publications (2007).
5. Schiff L. I., Quantum Mechanics, 3rd Edition MC- Graw Hill, (2007)
6. Chattopadhyay D. and Rakshit P.C., Practical Physics, 7th Edition, New Central Book Agency (2002)

Course Name: Applied Physics I Lab

Course Code: 19000300

List of Experiments

1. To find the refractive index and Cauchy's constants of a prism using Spectrometer.
2. To determine the frequency of an A.C. using Sonometer.
3. To determine the wavelength of Sodium light by Newton's Rings.
4. To Compare the capacitances of two condensers by De-sauty's Bridge method Using Head phone.
5. To study photovoltaic cell and hence to verify the inverse square law.
6. To determine the Resolving Power of a Telescope.
7. Determine the wavelength of sodium light by Fresnel's biprism.

8. To plot a graph between the distance of the knife-edge from the center of the gravity and the time period of bar pendulum. From the graph, find
   (a) The acceleration due to gravity
   (b) The radius of gyration and the moment of inertia of the bar about an axis.
9. To determine the moment of inertia of a flywheel about its own axis of rotation.
10. To determine the frequency of electrically maintained turning fork by Melde's method.
11. To determine the numeral aperture (NA) of a Optical Fibre.
12. Compute simulation (simple application of Monte Carlo) e.g. Brownian motion, charging & discharging of capacitor.
13. To verify the laws of vibrating strings by Melde's experiment that is to show that $\frac{\lambda 2}{T}$ = constant
14. To study the characteristics of PN diode and Zener diode.
15. To determine the frequency of AC Mains by using a sonometer and an electro-magnet.
16. To determine the impedance of A.C. Circuits.
17. Determination of Young's modulus of the material – Non uniform bending.
18. Determination of Rigidity modulus by Torsional Pendulum.

Course Name: Business Communication

Course Code: 99002200

Course Outline:

Unit I Introduction: Theory of Communication, Types and modes of Communication Fundamentals of Communication: Communication defined, Models of Communication, barriers in communication, perception and communication, essentials of good communication.

Unit II Language of Communication: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication Modes of human communication: Basic differences in the principal modes of human communication – reading, writing, listening, speaking and non-verbal communication. Spoken communication: Importance of spoken communication, designing receiver-oriented messages, comprehending cultural dimension. Speaking Skills Monologue Dialogue Group Discussion Effective Communication/ Mis- communication Interview Public Speech

Unit III Making Oral presentations: Functions of presentations, defining objective, audience analysis, collection of materials, organization of materials, body language, effective delivery techniques. Written communication: Fundamentals of sentence structure, writing as a process . Reading and Understanding Close Reading Comprehension Summary

Paraphrasing Analysis and Interpretation Translation (from Indian language to English and vice-versa) Literary/Knowledge Texts Writing Skills Documenting Report Writing Making notes Letter writing

Unit IV Fundamental of technical writing: Special features of technical writing, the word choice, developing clarity and conciseness, Report writing, Business letters, Applications and resumes. Transactional Analysis: Three human ego states, 4 life positions, different types of transactions

Unit V The significance of communication in a business organization: Channels of communication – Downwards, Upwards, Horizontal, Consensus, and Grapevine.Literary discussions: Analysis and discussion of the novel The Funda of Mix-ology and short stories from the books Under the banyan tree and other stories and Popular short stories.

Suggested Readings

1. Sen, L., Communication Skills. Prentice Hall of India (2004).Dhar, M., The Funda of Mixology: What bartending teaches that IIM does not, Srishti Publications (2008
2. Narayan, R. K., Under the banyan tree and other stories. Penguin Classics. (2007)
3. Lesikar R. V., and Flatley M. E., Basic Business Communication Skills for empowering the internet generation. Tata McGraw Hill (2004) 10th ed.
4. Sharma R. C., and Mohan K., Business Correspondence and Report Writing. Tata Mc-Graw Hill (1994)
5. Rodriques, M. V., Effective Business Communication. Concept Publishing Company. (2003).

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

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