

**MANNAR THIRUMALAI NAICKER COLLEGE**

**PASUMALAI, MADURAI- 625 004**

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

(Re-accredited with 'A' Grade by NAAC)



**CERTIFICATE COURSE**

**SYLLABUS AND REGULATIONS**

UNDER

CHOICE BASED CREDIT SYSTEM (CBCS)

**(For those who joined during 2018-2019 and after)**



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF PHYSICS (SF)**  
**(For those who joined in 2018 - 2019 and after)**

**Programme : PG**  
**Subject Code: 18PPHCC1**

**Hours: 45**  
**Credit: 01**

**ENVIRONMENTAL PHYSICS**

**Unit – I The forces of nature:** Newtonian Mechanics-momentum of inertia-forces-action and reaction-motion-SI units-scalars and vectors-gravity-Newtonian gravity-universal gravity-terminal velocity and settling velocity-rotational dynamics and angular momentum-moments of inertia-central forces-The coriolis force-The vortex-Orbits-waves-wave characteristics-wave properties.

**Unit –II Energy:** Energy, efficiency and entropy-entropy and environment-mechanical work-forces and energy-energy power and units-kinetic energy and potential energy-electrical energy-electric power and transmission-power station capacity-electric motors and generators-renewable energy-renewable resources- hydroelectric power and potential energy.

**Unit – III Heat and radiation:** Heat and temperature- Heat capacity-latent heat-Refrigeration and heat pumps-thermal expansion-Transmission of heat-Heat in buildings-Heat balance in animals and plants-Engines and thermal power production-The Carnot cycle.

**Unit –IV Earth’s climate and climate change:** The Earth’s climate- The atmosphere-General circulation of the atmosphere-Weather disturbances-Clouds-Ocean currents-Micro climates-The ozone layer-The earth’s radiative balance, albedo and the green house effect-Green house gases and green house warming potentials- Green house warming, feedbacks and climate impacts.

**Unit –V Sound and Noise:** Sound waves -The velocity of sound-Music-Ultrasound-Propagation of sound and acoustics-The Doppler effect-Measuring sound: the decibel-Combining the decibel levels-Propagation of sound over distance-Noise and noise nuisance-Human perception of sound and noise-Noise levels-Noise measurements-Controlling noise-Noise contours.

**Text Book**

1. Clare smith “Environmental Physics” Second Indian reprint, 2012, 2park square, Milton park,

Abingdon, 2012.

Unit I – Chapters 1

Unit II – Chapter 2

Unit III – Chapters 3

Unit IV – Chapters 5

Unit V – Chapters 6

**Reference Books:**

1. G. Tyler Miller, “Environmental Science Working with the Earth”, 11<sup>th</sup> Edition, Brooks Cole Publishers, Noida, 2005.
2. Norman Myers and Scott Spoolman, “Environmental Issues and Solution: A Modular Approach”, Brooks Cole Publishers, Noida, 2013.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS (SF)**  
(For those who joined in 2018-2019 and after)

**BASICS OF COMPUTER HARDWARE**

<b>Subject Code: 18CCACH1</b>	<b>Hours</b>	<b>: 45</b>
	<b>Credits</b>	<b>: 01</b>

**COURSE OUTCOMES**

**CO1:** To establish the self-employed Society.

**CO2:** To generate the Computer Hardware Professionals.

**CO3:** To Train the lower order Technicians.

**CO4:** To generate man power at different level to face the challenge of world ,  
Modern I.T. and Instrumentation.

**UNIT-I**

**Introduction to Pc Architecture:** Study of PC- AT/ATX System, Pentium, Core, Core2Cord, Core2Duo, i3,I5, I7Processor Basics of Processor andCPU Block Diagram of Computer and Computer Generation Motherboards, Chipset and Controllers, BIOS and the Boot Process, Computer Memory.

**UNIT-II**

**Operating System Basics &Installation:** Introduction to OS, Types of Operating systems, System files FAT and NTFS, Dos 6.22, Windows XP, Windows Vista, Windows 7 and Windows 8 and Red Hat Linux and Multi Boot OperatingSystem.

**UNIT-III**

**Various types of SoftwareInstallation:**Ms-office, Photoshop 7 and CS5, PageMaker 6.5, Corel-Draw, X3, Auto-CAD, Tally 7.0 and ERP, Acrobat Reader X, Java, Visual Studio, C & C++, Multimedia software's, and Internet Browsers like- IE9, Google Chrome, and Mozilla Firefox etc.

**UNIT-IV**

**DeviceInstallation:** Graphics Card, Sound Card, LAN Card, Wireless LAN Card, SCSI Card, External Drive, Flash Cards, Web Camera, CCTV Camera, Mobile Devices, Pen Drive, Fire wire Cards, Modem, Plotter, Wireless LAN, Access Pointetc.

## UNIT-V

**Diagnostic Tools & PC Maintenance:** Introduction, Virus and its types, Effect of Virus for Computer System, Scanning and Antivirus remover tools, Antivirus Utilities for Diagnostic, Safety and Preventive Maintenance Tools, Data Recovery, Concept of Fax and E-mail, PC care And Maintenance, Electrical Power Issues, Troubleshooting PC Hardware: - O/S Troubleshooting Issues in computerSystem.

### Reference Book:

1. PC AND CLONESHardware, TroubleshootingandMaintenance.Govindarajulu,Tata Mc-graw-HillPublication.
2. PC TroubleshootingandRepair StephenJ.Bigelow Dream tech Press, NewDelhi

### Web references:

1. [https://www.tutorialspoint.com/computer\\_fundamentals/computer\\_hardware.htm](https://www.tutorialspoint.com/computer_fundamentals/computer_hardware.htm)
2. <http://www.learning-about-computers.com/tutorials/troubleshooting.html>



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS (SF)**  
(For those who joined in 2018-2019 and after)

**Basics of Computer Hardware - Lab**

**Subject Code: 18CCAHP** **Practical Hours : 45**  
**Credits : 01**

**Course Outcomes:**

**CO1:** To establish the self-employed Society.

**CO2:** To familiarize in Computer Hardware.

**CO3:** To give practical training.

**CO4:** To generate man power to face the challenge of Modern I.T.

**List of practicals**

1. Assembling of a Computer
2. Installation of different Operating Systems
3. Installation of different device drivers
4. Installation of different Application Software
5. To Run All Dos Command (Internal and External Dos Command)
6. Assembling and Disassembling Of a Computer System
7. Troubleshooting and Repair Operating System
8. Tracking Data Backup and System Formatting and OS Installation
9. Installation of Different Device and Drivers PCI, PCI-E, AGP
10. Installation of MS Office.
11. Installation of On Board and PCI Device Driver
12. Installation of Application Software.
13. Installation of CD-DVD Burning Software.
14. Installation of Tally 7.2 and Tally ERP 9.0 and Tack Data Backup
15. Installation and Troubleshooting Different types of Antivirus Software
16. Installation Dual Operating System.
17. Installation and Troubleshooting of Printer (Dot-Matrix and Laser Printer)
18. Installation and Troubleshooting of Scanner (Photo & Bar Code Scanner)
19. To Repair and Troubleshooting of SMPS, Monitor, Printer and Motherboard



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**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF MATHEMATICS WITH CA (SF)**  
**(For those who joined in 2018-2019 and after)**

**Class : B.Sc Mathematics (CA)**  
**Subject Code : 18UMCCC1**

**Hours : 45**  
**Credits : 01**

**SPEED ARITHMETIC**

**Unit I :** Addition – Subtraction – Mixture of Addition and Subtraction

**Unit II :** Multiplication Using Base 10 and its powers – The multiplicands are both below a base – The multiplicands are both above a base – one of the numbers is below and the other above base 10 and its powers - Multiplication of more than two numbers – Multiplication of numbers are not near the base 10, 100 etc - Multiplication of numbers have different bases – Method using vertical and Cross wise Multiplication – Binary method – Some special cases of Multiplication – Multiplication one of the numbers is a series of the same digit – Summary of Multiplication methods.

**Unit III :** Squaring of numbers ending in 5 – squaring of numbers ending in a digit other than 5 – A combination of method – Another method of Squaring – Sums and Differences of Squares – Express the square of a number as the sum of two squared numbers – Express the square of a number as the difference of two squared numbers – Cubing of numbers – Method 1 – Method 2 – Raising of Fourth and Higher Powers

**Unit IV –** Division – A Simple Method - Method of Complements – Method of Cumulation – Division when Divisors are Different from 9's but are close to the Powers of 10 - The Multiples Method – Changes of Sign Method – Combination of Methods – Vertical and Cross Product Method – A variation using vinculum

**Unit V-** Divisibility – Method of Determining Positive Osculators – Method of Osculation Using Positive Osculators – Chain Method, Another Method – Method of Finding Negative Osculators - Method of Negative Osculation – Group Osculation – Types of Divisors in Group Osculation and their Corresponding Osculators – Osculation of the first type – Osculation of the second type – Osculation of the third type

**Text Book:**

1. Dr. T. A. Ramasubban, **Speed Arithmetic (Based on Vedic Word-Formulas)**, Second Edition, Published by The Author, September 2001.

**Reference Book: Vedic Mathematics**, Jagadguru Swami Sri Bharati Krsna Tirthaji Maharaja, Motilal Banarasi Das, Indological Publishers & Booksellers, First Edition 1965

Unit I - Chapter 3 ( Full)

Unit II - Chapter 4 (Full)

Unit III - Chapter 5 (Full)

Unit IV - Chapter 6 (Full)

Unit V - Chapter 7 (Full)





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3. PC AND CLONES Hardware, Troubleshooting and Maintenance. Govindarajulu, Tata Mc-graw-Hill Publication.
4. PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi

### Web references:

3. [https://www.tutorialspoint.com/computer\\_fundamentals/computer\\_hardware.htm](https://www.tutorialspoint.com/computer_fundamentals/computer_hardware.htm)
4. <http://www.learning-about-computers.com/tutorials/troubleshooting.html>



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF CHEMISTRY (SF)**  
(For those who joined in 2018-2019 and after)

**Subject Code : 18CCHF1** **Hours : 45**  
**Credits : 01**

**FOOD CHEMISTRY**

**Course outcomes:**

- CO1:** To know about the details of Food Science.
- CO2:** To get knowledge in Food Poison and Food Adulteration.
- CO3:** To study about the Food Additives and Food Technology

**UNIT I: Food Science**

Food relation to health – Function of Food – Food groups – Nutritional deficiency –  
Cooking –Preliminary Preparations – Cooking methods – Microwave cooking

**UNIT II: Food Poison**

Food poisons – natural poisons (alkaloids – nephrotoxins) – pesticides. (DDT, BHC,  
Malathion) – Chemical poisons – First-aid for poison consumed victims.

**UNIT III: Food Adulteration**

Sources of food – types – advantages and disadvantages – Food adulteration –  
contamination of Wheat, Rice, Alial, Milk, Butter etc. with clay stones, water and toxic  
chemicals – Common adulterants – Ghee adulterants and their detection – Detection of  
adulterated Foods by simple analytical techniques.

**UNIT IV: Food Additives**

Food additives – artificial sweetners – Saccharin – Cyclomate and aspartate – Food  
flavours – esters, aldehydes and heterocyclic compound – Food colours – restricted use –  
spurious colours – Emulsifying agents – preservatives learning agents – Baking powder-  
yeast – taste makers.

**UNIT V: Food Technology**

Biotechnology Food – Alage as Food – Spirulina – Organic Foods – Food irradiation –  
Packaging of Foods- Classification of Package.

**Text book:**

1. Srilakshmi. B, Food Science 3<sup>rd</sup> Edition, New Age International (P), Ltd, 2002

**Reference Books:**

1. JayashreeGhosh, Fundamental concepts of Applied Chemistry, S.Chand& Co. Publishers, 1998.
2. Thanlamma Jacob, Text Book of Applied Chemistry for Home Science and Allied Sciences, Macmillan, 2000.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF FOOD AND DAIRY TECHNOLOGY (SF)**  
(For those who joined in 2018-2019 and after)  
**Certificate Course**

**Subject Code : 18CFDBT1**

**Hours : 45**  
**Credits: 01**

**BAKERY TECHNOLOGY**

**Course Outcomes:**

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

**CO 1:** Adapt the standards and regulations followed in Bakery and confectionary industry

**CO2:** Utilize bakery unit processing machinery effectively

**CO3:** Adapt various process flow line in confectionary and bakery products

**CO4:** Handle confectionary products

**Unit: I - BAKERY INDUSTRY**

Current status, growth rate, and economic importance of Bakery Industry in India. Product types, nutritional quality and safety of products, pertinent standards & regulations.

**Unit: II- BREAD, BUNS AND PIZZA BASE**

Ingredients & processes for breads, buns, pizza base, Equipments used, product quality

Characteristics, faults and corrective measures

**Unit: III - CAKES, BISCUITS, COOKIES & CRACKERS**

Ingredients & processes for cakes, Equipments used, product quality characteristics, faults and Corrective measures. Different types of icings

**Unit: IV - SWEETS**

Halwa- Milk Khoa- Kadalai Mittai, equipments& processes, product quality parameters, faults and corrective measures.

**Unit: V - BREAKFAST CEREALS, MACARONI PRODUCTS AND MALT**

Production and quality of breakfast cereals, macaroni products and malt, Production & quality of chewing and bubble gums, cocoa products, breakfast cereals, macaroni products, sprouted grains.

**Text Books**

1. Beckette, Industrial Chocolate Manufacture, Wiley-blackwell publisher, 3rd edition, 2009
2. FaridiFaubion, Dough rheology and baked product texture, CBS publications, 1997

**Refernce Book:**

1. Pyler, Baking science and Technology, Sosl and Pub Co, 2009