

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY



CIRCULAR NO.SU./B.Sc.CBC & GS/11/2022

It is hereby inform to all concerned that, on the recommendation of Faculty of Science & Technology Meeting dated 24.08.2022, **the Academic Council at its meeting held on 29 August 2022 has accepted the following Syllabi of B.Sc. Degree under the Choice Based Credit & Grading System along with Rules and Regulation** as appended herewith:-


| | | |
|-----|---|-----------------------|
| 1. | B.Sc.Computer Science (Optional) | Ist and IInd semester |
| 2. | B.Sc.Computer Application (Optional) | Ist and IInd semester |
| 3. | B.Sc.Computer Application (Degree) | Ist and IInd semester |
| 4. | B.Sc.Computer Science (Degree) | Ist and IInd semester |
| 5. | B.Sc.Horticulture (Optional) | Ist to VIth semester |
| 6. | B.Sc.Botany (Optional) | Ist to VIth semester |
| 7. | B.Sc. Agrochemical & fertilizer (Optional) | Ist to VIth semester |
| 8. | B.Sc.Home Science (Optional) | Ist and IInd semester |
| 9. | B.Sc.Automobile Technology (Degree) | Ist and IInd semester |
| 10. | B.Sc.Workshop Technology (Degree) | Ist and IInd semester |
| 11. | B.Sc.Refrigeration and Air Conditioning (Degree) | Ist and IInd semester |
| 12. | B.Sc.Environmental Science (Optional) | Ist and IInd semester |
| 13. | B.Sc.Biotechnology (Degree) | Ist and IInd semester |
| 14. | B.Sc.Biotechnology (Optional) | Ist and IInd semester |
| 15. | B.Sc.Dairy Sci.& Tech (Optional) | Ist and IInd semester |
| 16. | B.Sc.Zoology (Optional) | Ist to VIth semester |
| 17. | B.Sc.Polymer Chemistry (Optional) | Ist and IInd semester |
| 18. | B.Sc.Fisheries Science (Optional) | Ist and IInd semester |
| 19. | B.Sc.Instrumentation Practice (Optional) | Ist semester |
| 20. | B.Sc.Biochemistry (Optional) | Ist and IInd semester |
| 21. | B.Sc.Non Conventional & Conventional Energy (Degree) | Ist and IInd semester |

This is effective from the Academic Year 2022-23 and onwards.

All concerned are requested to note the contents of this circular and bring notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
Ref.No. SU/B.Sc./2022/ 8428-35
Date:-29.08.2022.

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Deputy Registrar,
Academic Section

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Copy forwarded with compliments to :-

- 1] **The Principal, concerned affiliated College,**
Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.
- 2] **The Director, University Network & Information Centre, UNIC, with a request to upload this Circular on University Website.**

Copy to :-

- 1] The Director, Board of Examinations & Evaluation,
- 2] The Section Officer, [B.Sc. Unit] Examination Branch,
- 3] The Programmer [Computer Unit-1] Examinations,
- 4] The Programmer [Computer Unit-2] Examinations,
- 5] The In-charge, [E-Suvidha Kendra],
Rajarshi Shahu Maharaj Examination Branch,
- 6] The Public Relation Officer,
- 7] The Record Keeper,

Dr. Babasaheb Ambedkar Marathwada University
Aurangabad- 431004(MS) India.



Undergraduate Bachelor Degree Program
In Science (B.Sc.)
Computer Science (Optional Subject)

Course Structure and Curriculum
(Outcome based Curriculum)
Choice Based Credit System
(Effective from Academic Year 2022-23)

Dr. Babasaheb Ambedkar Marathwada University
Aurangabad – 431004 (MS) India.


Dean
Faculty of Science & Technology
Dr. Babasaheb Ambedkar Marathwada
University, Aurangabad

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Bhau
Chairperson
Ad-hoc Board in CS.

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1. Preamble

Education is the key to development of any society. Role of higher education is crucial for securing right kind of employment and also to pursue further studies in best available world class institutes elsewhere within and outside India. Quality education in general and higher education in particular deserves high priority to enable the young and future generation of students to acquire skill, training and knowledge in order to enhance their thinking, creativity, comprehension and application abilities and prepare them to compete, succeed and excel globally. Sustained initiatives are required to reform the present higher education system for improving and upgrading the academic resources and learning environments by raising the quality of teaching and standards of achievements in learning outcome s across all undergraduate programs in science, humanities, commerce and professional streams of higher education including computer science.

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2. Structure and Curriculum for Bachelor of Science (B. Sc.) Computer Science (Optional Subject)

(Choice Based Credit System)

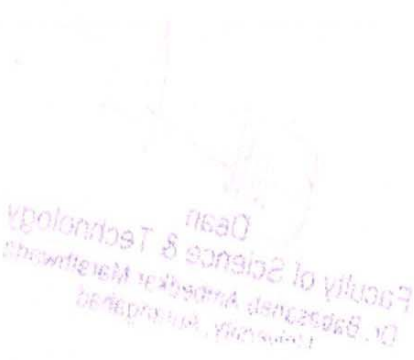
| Dr. Babasaheb Ambedkar Marathwada University, Aurangabad Choice Based Credit System (CBCS) Curriculum For Faculty of Science and Technology Course Structure and Scheme of Examination B.Sc. Three Year Undergraduate Degree Program | | | | | | | | |
|--|-------------|---|--------------------|---------|-----------------------|-----|-----|-----------|
| Semester I | | | | | | | | |
| | Course Code | Course Title | Teaching time/week | Credits | Scheme of Examination | | | |
| | | | | | Max Marks | CIA | UA | Min Marks |
| Optional I (DSC-1A) Core Courses | CMP-111 | Computer Fundamental | 45(3/week) | 2 | 50 | 10 | 40 | 20 |
| | CMP-112 | Operating System | 45(3/week) | 2 | 50 | 10 | 40 | 20 |
| | CMP-121 | Lab course 1 (based on CMP-111 and CMP-112) | 45(3/week) | 1.5 | 50 | 10 | 40 | 20 |
| Ability Enhancement compulsory courses (AECC-1) | CMP-131 | Communication skills in English-I | 45(4/week) | 3 | 50 | 10 | 40 | 20 |
| | CMP-132 | Marathi/Hindi/Urdu/Sanskrit A student can opt for any one of these languages (SL-I) | 45(4/week) | 3 | 50 | 10 | 40 | 20 |
| | | | 225 | 11.5 | 250 | 50 | 200 | 100 |
| Total Credits for Semester I : 11.5 (Theory : 10 ; Laboratory : 1.5) | | | | | | | | |


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Semester II

| | Course Code | Course Title | Teaching time/week | Credits | Scheme of Examination | | | |
|--|-------------|--|--------------------|---------|-----------------------|-----|-----|-----------|
| | | | | | Max Marks | CIA | UA | Min Marks |
| Optional I (DSC-1B) Core Courses | CMP-211 | Digital Electronic | 45(3/week) | 2 | 50 | 10 | 40 | 20 |
| | CMP-212 | Basic C Programing | 45(3/week) | 2 | 50 | 10 | 40 | 20 |
| | CMP-221 | Lab course 2 (based on CMP-211 and CMP-212) | 45(3/week) | 1.5 | 50 | 10 | 40 | 20 |
| Ability Enhancement compulsory courses (AECC-2) | CMP-231 | Communication skills in English-II | 45(4/week) | 3 | 50 | 10 | 40 | 20 |
| | CMP-232 | Marathi/Hindi/Urdu/Sanskrit A student can opt for any one of these languages (SL-II) | 45(4/week) | 3 | 50 | 10 | 40 | 20 |
| Non-Credit Course | CMP-213 | Constitution of India | 45(3/week) | 2* | | | | |
| | | | 225 | 11.5 | 250 | 50 | 200 | 100 |
| Total Credits for Semester Ii : 11.5 (Theory : 10 ; Laboratory : 1.5) | | | | | | | | |


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3. **Vision**

Framing and implementation of curricula and syllabi is envisaged to provide an understanding of the basic connection between theory and experiment and its importance in understanding the foundation of computing. This is very critical in developing a scientific temperament and to venture a career which a wide spectrum of applications as well as theoretical investigations. The undergraduate curriculum provides students with theoretical foundations and practical experience in both hardware and software aspects of computers.

4. **Mission**

The curriculum in computer science is integrated with courses in the sciences and the humanities to offer an education that is broad, yet of enough depth and relevance to enhance student employment opportunities upon graduation. As a Bachelor's degree program, the curriculum is based on the criterion that graduates are expected to function successfully in a professional employment environment immediately upon graduation.

5. **Program Educational Objectives:**

Program Educational Objectives (PEOs) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve. These objectives describe the expected accomplishments of our graduates during the several years following graduation.

Objective 1: Our graduates will apply their knowledge and skills to succeed in their careers and/or obtain advanced degrees.

Objective 2: Our graduates will behave ethically and responsibly, and will remain informed and involved as full participants in their profession and society.

Objective 3: Our graduates will creatively solve problems, communicate effectively, and successfully function in diverse and inclusive multi-disciplinary teams.

Objective 4: Our graduates will apply principles and practices of computing grounded in mathematics and science to successfully complete software-related projects to meet customer business objectives and/or productively engage in research.

6. **Program Outcomes (POs) and Program Specific Outcomes:**
Program Outcomes (POs)

| S.No | Program Outcomes (POs) |
|------|--|
| 1 | Engineering knowledge: Apply the knowledge of algorithm, data structure and programming to the solution of real time problems. |
| 2 | Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| 3 | Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| 4 | Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the computer science practice. |
| 5 | Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| 6 | Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| 7 | Project management: Demonstrate knowledge and understanding of the science principles and apply these for real time applications. |
| 8 | Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. |

Program Specific Outcomes (PSOs)

| S.No | Program Specific Outcomes (PSOs) |
|------|--|
| 1 | Model computational problems by applying mathematical concepts and design solutions using suitable data structures and algorithmic techniques |
| 2 | Design and develop solutions by following standard software engineering principles and implement by using suitable programming languages and platforms |
| 3 | Develop system solutions involving both hardware and software modules |

7. Eligibility:

1. He/ She must have passed the higher secondary (multipurpose) examination conducted by H.S.C. board Government of Maharashtra with science / 0technical subjects Or an Examination of any statutory University and Board recognized as equivalent thereto.
2. OR He / She must have passed examination prescribed at the end of second year of the junior college conducted by the H.S.C. board, Government of Maharashtra with English, Second language, Physics, Chemistry, Mathematics and or Biology or one of the technical subjects prescribed at the said examination as the optional or elective subjects or an examination recognized as equivalent thereto.
3. He/ She must have passed at qualifying examination. A candidate who has passed the B.Sc. examination of this university may be allowed to present himself subsequently at the degree examination in a subject or subjects other than those he has taken earlier provided that he puts in three years of attendance as a regular candidate for First, Second and Third year in the subject or subjects concerned excluding compulsory English, Second Language and remaining optional subject(s). A candidate shall not be allowed to appear for such examination if he has passed the higher examination.

8. Duration

The undergraduate program in Computer Science is offered through the courses designed for granting the following B.Sc degrees. All the courses are of 3-year duration spread over six semesters.

9. Medium of Instructions

The medium of instruction for this course is English.

10. Attendance:

This course is the practical course so, student should need minimum 40 % attendance for appearing the examination.

11. Curriculum for Semester I

Course Code: **CMP-111**

Course Title: **Computer Fundamental**

Total Credits: 02

Contact Hours: 30 (Clock Hours)

Marks: 50

Periods: 45 (45 minutes each)

Objective: To impart basic introduction to computer hardware, components, computer number system, how the CPU works, fundamental about algorithms and flowchart as well as different type of software.

UNIT-1: Introduction to Computers: (10 period)

Definition of Computers, History and Generations of Computers, Characteristics of computer, Classification of Computers. Fundamental Block diagram of Computer: CPU, Input & Output Unit. Input devices, Output devices, Types of printer's, Memory, CD-ROM, Hard disk, Floppy disk.

UNIT-2: Software: (10 period)

Definition of Software, Types of Software-System software, Application software and Utility software. Computer Languages: Definition, types of Programming languages, Language Processors: Assemblers, Interpreters, Compiler and Editors. Introduction to Operating Systems: Types of Operating System, Functions of Operating System examples. MS-DOS Internal and External Commands.

UNIT-3:Internet, World Wide Web: (10 period)

Introduction to Internet, Internet Access, Internet Basics, Protocols-TCP/IP,HTTP,FTP, Addressing, World Wide Web(WWW), Web Pages & HTML, Web browsers, Searching for information-search engines. Internet chat.Applications of Internet. Advantages and Disadvantages of Internet

UNIT-4: Number Systems and Arithmetic (10 period)

Decimal Number System & Binary Number System, Decimal to Binary conversion, Binary to Decimal Conversion,. Binary Arithmetic : Binary addition, subtraction, Multiplication & division Hexadecimal number system , Hexadecimal to binary,Binary to Hexadecimal, Hexadecimal to decimal conversion Binary subtraction using 1' complement, 2'scomplement method.

UNIT-5: Tutorial and Assignment (05 period)

References

1. Fundamentals of Computers, V. Rajaraman 6th edition PHI Learning Private Limited 2014
2. Fundamentals of Information Technology By Chetan Srivastava, Kalyani Publishers
3. Fundamentals of Computers By V. Rajaraman, PHI Publication , IVth Edition.
4. Fundamentals of Programming By Raj K. Jain, S. Chand Publication
5. Digital Electronics and Micro-Computers – R.K. Gaur , Dhanpat Rai Publication

Additional Reference:

1. Computer Today By Suresh K. Basandra, Galgotia Publication, Updated Edition
2. Computer Fundamental By B. Ram, BPB Publication.
3. Digital Electronics and Logic Design – N.G. Palan, Technova Publication

Course Code: **CMP-112**
Course Title: **Operating System**
Total Credits: 02
Contact Hours: 30 (Clock Hours)
Marks: 50
Periods: 45 (45 minutes each)

Objective: To introduce students the basic functioning of operating systems as resource manager and its Salient features. Also to study about process states, scheduling, Memory and I/O Management techniques.

Unit-I: Introduction to Software: (05 periods)

Software: Definition, classification of software, operating system as the main component of system software.

Unit-II: Operating System Fundamental (10 periods)

Operating Systems: OS as a resource manager, Structure of OS, Evolution of OS, OS functions, Characteristics of modern OS, Types of O.S.: Early systems, simple batch systems, multiprogramming batch systems, Time sharing system, Personal Computer systems, Parallel systems, Distributed systems, Real time systems.

Unit-III:I/O Management(10 periods)

I/O Management I/O System Components : I/O Devices , I/O, Hardware , Application I/O interface, Secondary Storage Structure : Disk fundamental, Disk Scheduling , Disk Management

Device Characteristics Input and Output devices, Storage devices, Device allocations, I/O scheduler, Introduction to Virtual Devices, Dedicated Devices, shared devices and virtual devices, Generalized strategies.

Unit-IV:Process Management and Memory Management (15 periods)

Concept of Process: Process State, Operation on Processes, thread.CPU Scheduling: Types of Schedulers, Criteria for scheduling, Scheduling Algorithms. Process Synchronization: Need for synchronization, Critical Section, Hardware Synchronization, Semaphores,

Monitors, Problem of synchronization. Deadlocks: Concept of Deadlock, Deadlock Modeling, Methods for Handling Deadlock

Address Binding, Logical Vs. Physical Address space, Memory Allocation, Paging, Segmentation, Segmentation and paging.

UNIT-5: Tutorial and Assignment (05 periods)

Core References:

1. "Operating System", By S.R.Sathe& Anil S.Mokhade , MacMillan Publication.
2. "Operating System", By Stuart E.Madnick, John J.Donovan.

Additional References:

- 1.Operating System Concepts- A. Silberzchaz& P.B. Galvin, Addison - Wesley Publishing Company

Course Code: **CMP-121**

Course Title: **Lab course 1 (Based on CMP-111 and CMP-112)**

Total Credits: 1.5

Contact Hours: 03 Hours (Week)

Marks: 50

Practical based on CMP-111

1. Student should prepare a report based on computer component such as monitor, printer, CPU, Pen drive, CD –ROM , Hard Disk
2. Create a partition of computer drive creation, formatting the drive and deleting the partition.
3. Create a user and password of computer user and Reset a computer password using CMOS battery.
4. Practical on office word tool as a creation, edit, insertion of table in the new word file.
5. Practical based on MS-Excel for creation of student data with name, marks, roll no for sorting and mark sheet creation.
6. Perform practical of DOS internal commands. DIR,TYPE,DEL, MD,CD,COPY,RMDIR,VER,DATE,TIME, CLS EXIT.
7. Write a comparative report of different web browser such as opera, Microsoft edge, chrome and mozilla Firefox.
8. Create an IP setting and home network setting for the computer.
9. Connect internet using wifi for a computer.
10. Practical based on online meeting using zoom, Google meet and skype
11. Practical based on remote desktop using any desk software.
12. Solve one example of binary to decimal, octal and hexadecimal number.
13. Solve one example of decimal to binary, octal and hexadecimal
14. Solve one example of octal to hexadecimal, decimal and binary.

Minimum three practical on each unit

Practical based on CMP-112

1. Execution of DOS internal and External commands
2. Study and explain the types of operating systems (their types with structure, functionality, dependencies, application software with their differences).
3. Installation of any one of the operating system.
4. Present the output of different file operation.
5. Implement any file allocation technique (Linked, Indexed or Contiguous) .(any one)
6. Present the output of following CPU Scheduling algorithm.(any one)
 - a. FCFS
 - b. SJF
 - c. Priority
 - d. Round Robin
7. Present the output of following Page Replacement Algorithm.(any one)
 - a. FIFO
 - b. LRU

Minimum three practical on each unit

12. Curriculum for Semester II

Course Code: **CMP-211**
Course Title: **Digital Electronic**
Total Credits: 02
Contact Hours: 30 (Clock Hours)
Marks: 50
Periods: 45 (45 minutes each)

Objective: To convey basic introduction of computer system architecture, the structure of computer, working gates and its functionality. To impart basic knowledge in digital logic and circuits and to introduce basic concepts of data communications. Student will be able to learn basic concepts of digital logic and the design of basic logic circuits using commonly used combinational and sequential circuits.

Unit-I: Boolean Algebra and Logic Gates: (10 periods)

Postulates of Boolean Algebra Theorems of Boolean Algebra: Complementation , commutative, AND, OR, Associative, Distributive, Absorption laws , DE Morgan's theorems, Reducing Boolean expressions Logic Gates : AND, OR, NOT, Ex-OR, Ex-NOR, NAND as Universal building block Logic diagrams of Boolean expressions Boolean expressions for logic diagrams

Unit-II: Combinational and Sequential circuit (10 periods)

Introduction of Minimization techniques, Minterms and Maxterms, K-Map, K-Map for 2,3 and 4 variable.

Combinational circuit and sequential circuit introduction, Half adder, half subtractor, Full Adder , Full Subtractor, Multiplexer, demultiplexer, encoder, decoder, BCD to Decimal decoder 2 : 4 demultiplexer, 4 line to 1 line multiplexer

Unit-III: Flip Flops (10 periods)

Introduction : RS FF, Clocked RS FF, D Flip Flops, Triggering, preset and clear, JK FF , T FF, Race around Condition

Unit-IV Counters Introduction:(10 periods)

Asynchronous/ ripple counter Modulus Counter , MOD-12 counter, Synchronous counter :
Synchronous serial & synch parallel counterbid counter, Ring counter

UNIT-5: Tutorial and Assignment (05 periods)**Core Reference:**

1. Digital Electronics and Micro-Computers – R.K.Gaur ,DhanpatRai Publication
2. Digital fundamentals –Floyd & Jain –Pearson Education
3. Introduction to computers –Norton –McGraw Hill 4. Digital fundamentals –Floyd & Jain –Pearson Education

Additional Reference:

1. Digital Electronics and Logic Design – N.G.Palan ,Technova Publication
2. Computer fundamentals –B.Ram –New Age International

Course Code: **CMP-212**
Course Title: **Basic C Programming**
Total Credits: 02
Contact Hours: 30 (Clock Hours)
Marks: 50
Periods: 45 (45 minutes each)

Objective: To expose students to algorithmic thinking and problem solving and impart moderate skills in programming using C Language in an industry-standard. Introduce students to learn basic features, Create, execute simple C programs using conditional statements, loops and arrays.

Unit-I: Introduction (10 periods)

An Overview of C , History of Programming language type, C as a Structured Language, Features of C. Data Types Data Types: int, char, float, double. Declaration & Initialization, Example.

Character set, C Token, Identifier & Keywords, Variables, Constant and its types. Integer constant, floating point constant, character constant, string constants, Operators: Arithmetic, Relational, Logical, Unary operators, Increment & decrement Assignment and Conditional operator.

Unit-II :C Program & I/O statements (10 periods)

Structure of C Program, Compilation & Execution of C program, I/O: Introduction, Formatted Input/output function: scanf & printf, Escape sequence characters.

Unit-III: Control and Iterative Statements(10 periods)

Simple if, nested if, if-else, else if ladder, Switch-case statement, The conditional expression (? : operator),while and do-while loop, and for loop, break & continue statement, goto statement

Unit-IV: Arrays Introduction(10 periods)

Declaration and initialization Accessing array elements, Memory representation of array. One dimension and multidimensional arrays, character array, Introduction to string

UNIT-5: Tutorial and Assignment (05 periods)

References

1. Let us C : Y. P. Kanetkar [BPB publication]
2. Programming in C : E. Balaburuswamy [Tata McGraw hill]
3. Programming in C : Goterfried [Shaums' Series]

Course Code: **CMP-221**

Course Title: **Lab course 1 (based on CMP-211 and CMP-212)**

Total Credits: 1.5

Contact Hours: 03 Hours (Week)

Marks: 50

Objective: student understands the practical and logical application of programming language. The use of C logical statement in real time example solving. The student should understand the working of logic gate with its application in real time era.

Practical based on Digital Electronic

1. The practical should be done on kit for AND, OR , NOT, NAND, NOR , X-OR and X-Nor gate (**If kit not available use the software simulation for practical**)
2. Study of Components: Identification and testing of resistors, capacitors, inductors, diodes, LEDs & transistors
3. Study of Logic Gates: Study of truth table of basic gates, realization of Boolean functions
4. Study of Half adder and Full Adder
5. Study of Half Subtractor and Full Subtractor
6. Study of Implementation of a 3:8 decoder,
7. Study of 4-line to 16 bit decoder
8. Study of BCD to 7-segment decoder
9. Study of Generating a Boolean expression with a multiplexer
10. Study of Clocked JK Flip Flop 11. Study of 4-bit ripple counter 12. Study of Parallel-in, serial-out, 4-bit shift register

Practical based Basic C Programing

1.Installation of C Program:

Download and installation of C programming software. Discussion on available c software and use of each individually.

2. Input Output statement program

Minimum 10 program on input and output statement, data type and constant.

3.List of Program for student to understand the concept of programing

- Find Area, Perimeter of Triangle & Rectangle.
- Find maximum amongst 3 numbers.
- Program for nested loops.
- Program to Calculate x y
- Program to check Prime Number, Program reverse of digit.
- Program to find Armstrong Number.
- Program to print the Fibonacci Series
- Searching and element from array.
- Transpose of matrices
- Multiplication of matrices
- Sorting array using the bubble sort technique
- Program for factorial of number

Course Code: **CMP-213**

Course Title: **Constitution of India**

Total Credits: NA (Non-Credit Course)

Contact Hours: 30 (Clock Hours)

Periods: 45 (45 minutes each)

Objective: To objective of this paper is to introduce the Indian constitution of student.

Unit-I: (05 periods)

1. Meaning and concept of Indian Constitution.
2. Nature of constitution.
3. Brief idea of Indian Constitution.

Unit-II: Silent Feature of Indian Constitution (10 periods)

Written and Enacted Constitution; The longest and most detailed Constitution of the World; Rigidity and Flexibility Constitution; Parliamentary system of Government; Federal system with unitary basis; Adult Franchise; Single Citizenship; Sovereign, Democratic, Republic; Secularism; directive Principles of state policy; independent Judiciary; Fundamental Rights; Fundamental Duties.

Unit-III: (10 periods)

A. Fundamental Rights

Concept of State (Art-12); Right of Equality (Art-14 to 18); Right to Freedom (Art-19 to 22); Right against Exploitation (Art-23 & 24); Right to Religion (Art-25 to 28) ; Right to Minorities (Art-29 & 30) Constitutional Remedies(Art-32).

B. Fundamental Duties (Art-51 A)

Unit-IV: Directive Principles of State Policy (DPSP's) (15 periods)

1. Meaning and Significance of Directive Principles.
2. Classification / Principles of D. P. S. P.
3. Relationship between F. Rs. and D. P. S. P.

Executives

- A) Union Government : The President, Council of Ministers and Prime Minister
- B) State Government: The Governor, Council of Ministers and Chief Minister

UNIT-5: Tutorial and Assignment (05 periods)

References

1. Constitution of India, Bare Act. Govt. of India.
2. Subhash C. Kashyap, Our Constitution (An Introduction of Indian Constitution and Constitutional) law, National Book Trust, India 2001.
3. Avasti & Maheshwari, Indian Constitution, Lakshmi Narain Agrwal Agra 2017.
4. Basu D. D. , Introduction to the Constitution of India, Laxis Nexis 2013.
5. Sharma L. N. Indian Prime Minister, The MacMillan company of India, 1976.
6. Jain H. M. Union Executive, Chaitanya Publication House 1969.
7. Dr. S. N. Busi, Dr. B. R. Ambedkar, Framing of Indian Constitution, 1st Edition 2015.
8. M. P. Jain, Indian Constitution Law 7th Edition Nexis 2014
9. M. P. Jain, Outline of Indian Legal and Constitutional History Laxis Nexis 2014
10. भारताचे संविधान
11. प्रदीप गायकवाड, (संपादक) भारताचे संविधान शिल्पकार डॉ. बाबासाहेब आंबेडकर दीक्षाभूमी संदेश, नागपूर २००६
12. डॉ. भा.ल. भोळे, भारताचे शासन आणि राजकारण, विद्या प्रकाशन नागपूर

NOTE: All latest volumes of above-mentioned books must be preferred. The above list of books is not an exhaustive one.

| | |
|--------------------------------|----------|
| Two Internal Test (45 Minutes) | 10 Marks |
| Two Home Assignment | 10 Marks |