Semester VI

Sl. No.	Category	Code No.	Course Title	Hours per week			Total Contact Hrs/Week	Credit
				L	T	P		
1	Programme core course-21	CSPC601	Wireless and Mobile Network	3	0	0	3	3
2	Programme core course-22	CSPC602	Fundamentals of AI	2	0	0	2	2
3	Programme elective course-4	CSPE603	1. Advance Computer Networks/ 2. Information Security / 3. Network Forensics	3	0	0	3	3
4	Humanities and Social Science course	HSS604	Entrepreneurship and Start-up's	3	1	0	4	4
5	Open elective-2	**OE05	To be offered by other departments	3	1	0	4	4
6	Mandatory Course-2	AU606	Indian Constitution	2	0	0	2	0
7	Major Project	CSPR607	Project part-II	0	0	6	6	3
8	Seminar	CSSE608	Seminar	2	0	0	2	1
			Total				**26**	**20**

Wireless and Mobile Network

Course Code	CSPC601
Course Title:	Wireless and mobile network
Number of credits	3 (L: 3, T: 0, P: 0)
Prerequisites	NIL

Course Outcomes: After completing the course, the students will be able to

C.O.1: Explain cellular system, 2G/3G/4G/5G mobile network, Frequency reuses and channel interferences (K2).

C.O.2: Demonstrate concepts related to wireless propagation (K2).

C.O.3: Explain concepts of wireless antenna (K2).

C.O.4: Explain different multiplexing techniques (K2).

C.O.5: Illustrate the concepts and applications of Bluetooth, RFID, WLAN and WiMAX (K2).

Course Contents:

Module 1: Overview of Cellular Systems.   **No. of lectures:** 8

Learning Outcomes: Students will be able to explain

1. Basics of data cellular systems.
2. Evolution of 2g/3G/4G/5G mobile network concept.
3. Frequency reuses and channel interferences.

Overview of Cellular Systems, Evolution 2g/3G/4G/5G Cellular Concepts – Frequency reuse, Co channel and Adjacent channel Interference

Module 2: Wireless propagation   **No. of lectures**: 8

Learning Outcomes: Students will be able to explain

1. Wireless propagation, budget, loss, noise, fading and shadowing.

Wireless propagation Link budget, Free-space path loss, Noise figure of receiver Multipath fading, Shadowing, Fading margin, shadowing margin.

Module 3: Wireless Antenna   **No. of lectures**: 8

Learning Outcomes: Students will be able to explain

1. Types of wireless antenna.
2. Wireless channel, capacity and MIMO technology for wireless antenna.

Antenna diversity, wireless channel capacity and MIMO.

Module 4: Overview of multiplexing techniques.   **No. of lectures:** 6

Learning Outcomes: Students will be able to explain

1. Multiplexing and different multiplexing techniques.
2. LTE technology.

Overview of CDMA, OFDM and LTE.

Module 5: Wireless Networking Technologies.   **No. of lectures:** 6

Learning Outcomes: Students will be able to explain

1. Classification of Bluetooth technologies.
2. Concepts and applications of RFID
3. Demonstrate WLAN and WiMAX technologies.

Overview of Bluetooth technologies, RFID, WLAN and WiMAX.

References:

S. No.	Title of Book	Author	Publication
1	Wireless Communications – Principles and Practice	T. S. Rappaport	(2nd edition) Pearson ISBN 9788131731864
2	Modern Wireless Communications	Haykin& Moher	Pearson 2011 (Indian Edition) ISBN : 978-8131704431

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Fundamentals of AI

Course Code	CSPC602
Course Title	Fundamentals of AI
Number of Credits	2 (2:0:0)
Prerequisites	Basic knowledge of algorithm and searching technique.
Course Category	Programme core course

Course Outcomes: -

Upon successful completion of this course, students will be able to

1) Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations. **(K1)**

2) Understand and implement search and game algorithms. **(K1, K2)**

3) Explain basic concepts, methods and theories for search. **(K2)**
4) Account for classical planning of proactive agents. **(K1)**
5) Apply basic principles of AI in solutions that require problem solving, inference, knowledge representation, and learning.**(K3)**

Module- 1: Introduction

Number of class hours: 4

After completing this module students will be able to
  1) Understand basic concepts and history behind AI. **(K2)**
  2) Explain Symbol system. **(K2)**
  3) Identify agents of AI. **(K2)**

Detailed content of the unit:

Overview and Historical Perspective of AI, Turing test, Physical Symbol Systems and the scope of Symbolic AI, Agents of AI.

Module- 2: Searching

Number of class hours: 6

Suggestive Learning Outcomes:
After completing this module students will be able to
  4) Understand basic concepts of search mechanism in AI. **(K2)**
  5) Explain different types of Heuristic and Randomized Search. **(K2)**
  6) Apply search in problem solving. **(K3)**

Detailed content of the unit:

Heuristic Search: Best First Search, Hill Climbing, Beam Search, Tabu Search.
Randomized Search: Simulated Annealing, Genetic Algorithms, Ant Colony Optimization.

Module-3: Path Finding Algorithms

Number of class hours: 5

After completing this module students will be able to
  1) Explain different optimal pathfinding techniques. **(K1)**
  2) Describe Rule based system. **(K1)**
  3) Understand and apply game playing algorithm.**(K2)**

Detailed content of the unit:

Finding Optimal Paths: Branch and Bound, A*, IDA*, Divide and Conquer approaches, Beam Stack Search.
Problem Decomposition: Goal Trees, AO*, Rule Based Systems, Rete Net.
Game Playing**:** Minimax Algorithm, AlphaBeta Algorithm, SSS*.

Module-4:   Planning and Constraint Satisfaction

Number of class hours: 5

After completing this module students will be able to
1) Understand and explain forward and backward search. **(K2)**
2) Understand basic concept of planning and propagation.**(K2)**

Detailed content of the unit:

Planning and Constraint Satisfaction: Domains, Forward and Backward Search, Goal Stack Planning, Plan Space Planning, Graphplan, Constraint Propagation.

Module- 5 :Logic and Inferences
Number of class hours: 5

After completing this module students will be able to
1) Differentiate between various types of Logic. **(K2)**
2) Understand and demonstrate chaining in AI. **(K2)**

Detailed content of the unit:

Logic and Inferences: Propositional Logic, First Order Logic, Soundness and Completeness, Forward and Backward chaining.

 References: -
1. Deepak Khemani. A First Course in Artificial Intelligence, McGraw Hill Education (India)
2. https://nptel.ac.in/courses/106106126/
3. Stefan Edelkamp and Stefan Schroedl. Heuristic Search, Morgan Kaufmann.
4. Pamela McCorduck, Machines Who Think: A Personal Inquiry into the History and Prospects of Artificial Intelligence, A K Peters/CRC Press
5. Elaine Rich and Kevin Knight. Artificial Intelligence, Tata McGraw Hill.
6. Stuart Russell and Peter Norvig. Artificial Intelligence: A Modern Approach, Prentice Hall
7. M.C. Trivedi, A classical approach to Artificial Intelligence, Khanna Publishing House.
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Advance Computer Networks

Course Code	CSPE603-1
Course Title	Advance Computer Networks
Number of Credits	3 (L: 3, T: 0, P: 0)
Prerequisites	-
Course Category	Programme elective course

Course Outcomes: -

After the completion of the course Student will be able to
1) Implement of Network Layer Protocols. (K1)
2) Configure IPv6 Network (K3)
3) Choose Routing protocol in the given network situation (K2)
4) Implement of Network Layer Protocols. (K2)
5) Configure various Application Layer protocol. (K3)

Course Content: -

Module- 1: Network Layer and Protocol
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
1) Understand the significance of the given field in the packet format of Internet Protocol. (K2)
2) Implement IP address for the given network. (K1)
3) Understand the significance of the given field in the packet format of ICMPv4. (K2)
4) Understand the given inefficiency in Mobile IP.(K1)

Detailed content of the unit: - IP Addressing, address space, notations, Classfull addressing, Classfull addressing, Network Address Translation(NAT), IP Datagram format, Fragmentation, ICMPv4 messages, Debugging tools, ICMP Checksum, Mobile IP addressing, Agents, Three phases, Inefficiency in Mobile IP, VPN Technology

Module- 2: Next Generation IP

Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-

1) Map the given IPv4 Address to IPv6 Address. (K3)
2) Describe the function of given step in the stateless auto configuration process. (K2).

3) Outline the given strategy of Transition from IPv4 to IPv6. (K1)
4) Understand the significance of the given field in Datagram format of IPv6. (K2)

Detailed content of the unit: - IPv6 Addressing representation, address space, address space allocation, Autoconfiguration, Renumbering, Transition from IPv4 to IPv6, Duel stack, Tunneling, Header Translation, IPv6 Protocol packet format, Extension header.

Module- 3: Unicast and Multicast Routing Protocols
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
1) Understand the relevant routing Protocol for the given network situation. (K2)
2) Compare Dynamic Routing and Static Routing on the given aspect. (K1)
3) Calculate shortest paths from a single source vertex to all the other vertices in the given weighted digraph. (K3)
4) Understand the functioning of the multicast routing protocol. (K1)

Detailed content of the unit: - Inter-domain, intra-domain Routing, Distance Vector Routing, Bellman-Ford Algorithm, Link state Routing, Path Vector Routing, Unicast Routing Protocols Internet structure, Routing Information Protocol (RIP), Open Shortest Path First(OSPF), Border Gateway Protocol Version 4 (BGP4), Unicast, Multicast, Broadcast, Multicast Distance Vector(DVMRP), Multicast Link State(MOSPF), Protocol Independent Multicast (PIM),

Module- 4: Transport Layer Protocols

Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module students will be able to-
1) Understand the significance of the UDP Packet Format. (K2)
2) Understand the concept of State Transition of TCP. (K2)
3) Understand the significance of the TCP Packet Format. (K2)
4) Understand the significance of the SCTP Packet Format. (K2)

Detailed content of the unit: - User Datagram Protocol, UDP Services, UDP Applications, TCP Services, TCP features, Segment, A TCP Connection, State Transition Diagram, Windows in TCP, Flow Control, Error Control, TCP Congestion Control, TCP Timers, Options, SCTP Services, SCTP Features, Packet Format, An SCTP Association, Flow Control, Error Control.

Module- 5: Application Layer Protocols

Number of class hours: 6 Hrs
Suggestive Learning Outcomes: After completing this module student will be able to-

1) Understand the function of Application Layer Protocol. (K1)
2) Understand the function of FTP, Email architecture. (K2)
3) Understand the process of resolving the given host name into IP Address using DNS. (K3).
4) Working with Remote Control Protocol. (K3)

Detailed content of the unit: - WWW, HTTP, FTP, TFTP, Email Architecture, Web based mail, Email Security, SMTP, POP, IMAP and MIME, SNMP, Concept of Domain space, DNS Operation, DHCP-Static and Dynamic Allocation, DHCP Operation, TELNET, SSH, Intrusion detection system (IDS), Intrusion prevention system (IPS)

References: -

1) Advanced Computer Network, BM Harwani and DT Editorial Services, Dreamtech
2) Computer Networks, Andrew S. Tanenbaum(Author), PHI Learning.
3) Internetworking with TCP/IP, Comer Douglas E., Prentice Hall of India Private Limited
4) Computer Networks, Natalia Olifer, Victor Olifer, Wiley.

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Information Security

Course Code	CSPE603-2
Course Title	Information Security
Number of Credits	3 (L: 3, T: 0, P: 0)
Prerequisites	-
Course Category	Programme elective course

Course Outcomes: -

After the completion of the course Student will be able to
1) Understand the concept of Information Security and CIA TRIAD. (K2)
2) Understand the concept of Application Security, encryption and Cryptography (K2)
3) Understand the concept of security measures and risk management (K2)
4) Understand the knowledge of Cyber laws in cases of various crimes. (K2)

Course Content: -

Module- 1: Introduction to Information Systems and Security
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-

1) Understand the concept of Information Security. (K1)
2) Understand the significance of CIA TRIAD. (K2)
3) Understand the need of cyber security. (K2)
4) Understand the threats to Information Systems. (K2)

Detailed content of the unit: - Information Systems, Types of IS, Development of IS, Introduction to Information Security, Need for Information Security, Understanding CIA TRIAD, Threats to Information Systems, Information Assurance, Cyber Security

Module- 2: Introduction to Application Security and Counter Measures

Number of class hours: 8 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-

1) Understand the concept of Application Security. (K1)
2) Understand the significance of the security threats to eCommerce and Digital payment system. (K2)
3) Understand the need of Cryptography and Encryption. (K2)
4)

Detailed content of the unit: - Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System, Credit/Debit/Smart Cards, Digital Signature, Cryptography and Encryption

Module- 3: Introduction to Security Measures
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
5) Understand the role of risk management in the field of information security. (K2)
6) Understand the concept of security architecture and design. (K2)
7) Understand the concept of physical security and backup security. (K2)

Detailed content of the unit: - Secure Information System Development, Application Development Security, Information Security Governance and Risk Management, Security Architecture and Design, Security Issues in Hardware, Data Storage, and Downloadable Devices, Physical Security of IT Assets, Backup Security Measures

Module- 4: Introduction to Security Policies

Number of class hours: 4 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
1) Understand the concept of security policy. (K2)
2) Understand the concept of security standards. (K2)

Detailed content of the unit: Need for an Information Security Policy, Information Security Standards - ISO, Introducing Various Security Policies and Their Review Process,

Module- 5: Cyber Laws

Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
1) Understand the significance of cyber law. (K1)
2) Knowledge of IT Act 2000 and Amendments in 2008. (K2)
3) Knowledge of Intellectual Property Issues, Patent Copyright. (K2)

Detailed content of the unit: - Introduction to Indian Cyber Law, Objective and Scope of the IT Act 2000 & Amendments in 2008, Need for Enactment of Information Technology Act, 2000, Objectives of IT Legislation in India, IT Act 2000 legislation deals with, Salient Features of I.T Act, Applicability of IT Act, Chapters in the Act, Schedules in the Act, Need for IT Amendment Act 2008 (ITAA), Case Studies as per selected IT Act Sections, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright, Law Related to Semiconductor Layout and Design, Software License

References: -

1) Introduction to Information Security and Cyber Laws, Surya Prakash Tripathi, Ritendra Goel, Praveen Kumar Shukla, Dreamtech Press
2) Cryptography and Information Security, V. K. Pachghare, PHI Learning
3) Cyber Law & Cyber Crimes Simplified, Adv. Prashant Mali, Cyber Infomedia

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Network Forensics

Course Code	CSPE603-3
Course Title	Network Forensics
Number of Credits	3 (L: 3, T: 0, P: 0)
Prerequisites	-
Course Category	Programme elective course

Course Outcomes: -

After the completion of the course Student will be able to

1) Understand the concept of Network Forensics and its uses. (K1)
2) Understand the concept of Traffic Analysis for Network Forensics. (K2)
3) Understand the concept of Network Intrusion Detection and Analysis (K2)
4) Understand the concept of Wireless Network Forensics. (K2)
5) Understand the concept of Network Tunneling & Malware Forensics. (K2)

Course Content: -

Module- 1: Foundation of Network Forensic
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-

1) Understand the concept of Investigation Strategy. (K2)
2) Understand the concept of Digital Evidence Acquisition. (K1)
3) Understand the concept of Network Forensics Investigation Methodology. (K2)

Detailed content of the unit: - Practical Investigative Strategies, Real-World Cases, Footprints, Concepts in Digital Evidence, Challenges Relating to Network Evidence, Network Forensics Investigative Methodology (OSCAR), Sources of Network-Based Evidence, Principles of Internetworking, Internet Protocol Suite, Physical Interception, Traffic Acquisition Software, Active Acquisition

Module- 2: Traffic Analysis
Number of class hours: 8 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-

1) Understand the concept Traffic analysis. (K1)
2) Understand the concept of packet analysis, Statically Flow Analysis. (K2)
3) Understand the concept of Wireless Network Forensics. (K2)

Detailed content of the unit: - Packet Analysis, Protocol Analysis, Packet Analysis, Flow Analysis, Higher-Layer Traffic Analysis, Statistical Flow Analysis, Process Overview, Sensors, Flow Record Export Protocols, Collection and Aggregation, Analysis, IEEE Layer 2 Protocol Series, Wireless Access Points (WAPs), Wireless Traffic Capture and Analysis, Common Attacks, Locating Wireless Devices

Module- 3: Network Intrusion Detection and Analysis
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
    1) Understand the concept of NIDS. (K2)
    2) Understand the concept of packet logging, Snort. (K2)

Detailed content of the unit: - Why Investigate NIDS/NIPS, Typical NIDS/NIPS Functionality, Modes of Detection, Types of NIDS/NIPSs, NIDS/NIPS Evidence Acquisition, Comprehensive Packet Logging, Snort.

Module- 4: Network Devices and Servers
Number of class hours: 4 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
    1) Understand the concept of Event Log Aggregation, Correlation, and Analysis. (K2)
    2) Understand the concept of Network Log Architecture. (K2)
    3) Clarify the knowledge of network devices(K1)
    4) Uses of difference tools for analysis. (K3)

Detailed content of the unit: Event Log Aggregation, Correlation, and Analysis, Sources of Logs, Network Log Architecture, Collecting and Analysing Evidence, Storage Media, Switches, Routers, Firewalls, Interfaces, Logging, Why Investigate Web Proxies, Web Proxy Functionality, Evidence, Squid, Web Proxy Analysis, Encrypted Web Traffic

Module- 5: Network Tunneling&Malware Forensics
Number of class hours: 6 Hrs

Suggestive Learning Outcomes: After completing this module student will be able to-
    1) Understand the concept of network tunnelling. (K2)
    2) Understand the concept of Malware. (K1)
    3) Understand the Network Behavior of Malware.(K2)

Detailed content of the unit: - Tunneling for Functionality, Tunneling for Confidentiality, Covert Tunneling, Trends in Malware Evolution, Network Behavior of Malware, The Future of Malware and Network Forensics

References: -

1) Network Forensics: Tracking Hackers through Cyberspace, Sherri Davidoff, Jonathan Ham, Pearson Prentice Hall
2) Learning Network Forensics, Samir Datt, Ingram
3) Fundamentals of Network Forensics, Joshi, R.C., Pilli, Emmanuel S., Springer
4) Network Forensics, Ric Messier, Wiley

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Entrepreneurship and Start-ups

Course Code	:	HSS 604
Course Title	:	Entrepreneurship and Start-ups
Number of Credits	:	4 (L:3, T:1, P:0)
Prerequisites (Course code)	:	None
Course Category	:	HSS

CO1   Understand the basic concepts of Entrepreneurship and Startups.

CO2   Illustrate skills of discovering business ideas, visualizing and planning a business.

CO3   Analyze market and business risk for strategy development.

CO4   Demonstrate skills of organizational management.

CO5   Exhibit knowledge of financing methods, institutions and skills for communication of ideas.

Course Content:

Unit1-Introduction and Basics of Entrepreneurship and Start–Ups

Suggestive Learning Outcomes:

(1) Describe the Basic Elements of Entrepreneur and Entrepreneurship

(2) Distinguish between Entrepreneur, Manager and Intrapreneur

Content:
- Definitions, Traits of an entrepreneur, Factors influencing entrepreneurship, Types and Functions of Entrepreneurs, Need for promotion of entrepreneurship, Intrapreneur, Motivation
- Role of Entrepreneurs in Economic Development
- Similarities/differences between - Entrepreneur and Manager, Entrepreneur and Intrapreneur.

Unit2–Business Ideas and their implementation

Suggestive Learning Outcomes:

(1) Illustrate different Types of Business Planning and Business Structure
(2) Select specific Institutions Assisting Entrepreneur
Content:
- Discovering ideas
- Visualizing the business
- Business Plan, - Types of planning, Importance of planning, Steps in planning
- Types of Business Structures
- Institutions assisting entrepreneur

Unit3–Idea to Start-up

Suggestive Learning Outcomes:

(1) Identify Steps for Starting a SSI
(2) Predict the Target Market and Associated Risk

Content:

- Market analysis – Identifying the target market
- Competition evaluation and Strategy Development
- Steps for starting a small enterprise
- Risk analysis

Unit4–Management of Enterprise

Suggestive Learning Outcomes:

(1) Apply the Basic Accounting Concepts in Business
(2) Demonstrate Knowledge of Pricing, Positioning and Advertising of Products

Content:

- Recruitment and management of talent.
- Determinants of Price, Pricing methods in practice.
- Market Positioning, Advertising and Sales Promotion
- Accounting - Understanding basics of Transaction, Journal, Ledger, Cashbook, Trial Balance, Cost Sheet and Final Accounts through simple problems

Unit5-Financing and Communication of Ideas

Suggestive Learning Outcomes:

(1) Exhibit Knowledge of various Financial Institutions and Financing Methods
(2) Illustrate Business Ideas through Communication Skills

Content:

- Financial Institutions
- Financing methods available for start-ups in India
- Communication of Ideas to potential investors–Investor Pitch

SUGGESTED LEARNING RESOURCES:

S.No.	Title of Book	Author	Publication
1.	The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company	Steve Blank and Bob Dorf	K & S Ranch ISBN–978-0984999392
2.	The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses	Eric Ries	Penguin UK ISBN–978-0670921607
3.	Demand: Creating What People Love Before They Know They Want It	Adrian J. Slywotzky with Karl Weber	Headline Book Publishing ISBN–978-0755388974
4.	Entrepreneurship	Alpana Trehan	Dreamtech PressISBN: 978-93-5004-026-3

S.No.	Title of Book	Author	Publication
5	Marketing and Sales Management	D C Kapoor	S Chand and Company Ltd. ISBN: 81-219-2430-8
6	Business Economics	H L Ahuja	S Chand and Company Ltd. ISBN: 81-219-1791-3
7	Financial Accounting (Principles and Practice)	Jawahar Lal & Seema Srivastava	S Chand Publishing
8	Accounting for Management	N.P. Srinivasan & Sakthivel Murugan	S Chand Publishing
9	Marketing	Harsh V Verma and Ekta Duggal	Oxford University Press ISBN: 0-19-945910-X
10	Marketing (Asian Edition)	Paul Baines, Chris Fill, Kelly Page and Piyush K. Sinha	Oxford University Press
11	Entrepreneurship	Rajeev Roy	Oxford University Press ISBN: 0-19-807263-5
12	Entrepreneurship Development	Kumar S Anil	New Age Publishers
13	Human Resource Management	Uday Kumar Haldar and Juthika Sarkar	Oxford University Press
14	Fundamentals of Entrepreneurship	S K Mohanty	Prentice Hall of India Private Limited ISBN: 81-203-2867-1
15	Entrepreneurship Development	S S khanka	S Chand and Company Ltd. ISBN: 81-219-1801-4

SUGGESTED SOFTWARE/LEARNINGWEBSITES:

a. https://www.fundable.com/learn/resources/guides/startup
b. https://corporatefinanceinstitute.com/resources/knowledge/finance/corporate- structure/
c. https://www.finder.com/small-business-finance-tips
d. https://www.profitbooks.net/funding-options-to-raise-startup-capital-for-your-business/

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Indian Constitution

Course Code	:	AU606
Course Title	:	Indian Constitution
Number of Credits	:	0 (L: 2, T:0; P:0)
Prerequisites	:	None
Course Category	:	AU

Course Outcomes:

CO1. Illustrate Preamble, Basic Structure, Fundamental Rights and Duties of Indian Constitution(K3).

CO2. Discuss the Structure of The Indian Union Government (K2).

CO3. Memorize the Role andPower of Governor, Chief Minister and Council ofMinisters and explain the role of State Secretariat (K2).

CO4. Describe the role of Local Administration (K2).

CO5. Explain the Role andFunctioning of Election Commission (K2).

Detailed Course Content:

Module: 1 – **The Constitution – Introduction**

Number of Class hours:06

Learning Outcomes:

1. Describe the History of the Making of the IndianConstitution (K2)
2. Illustrate Preamble and the Basic Structure of Indian Constitution (K3)
3. Illustrate the Fundamental Rights and Duties set by Indian Constitution (K3)

Detailed content of the unit:

1. The History of the Making of the IndianConstitution
2. Preamble and the Basic Structure, and itsinterpretation
3. Fundamental Rights and Duties and theirinterpretation
4. State PolicyPrinciples

Module: 2 – **Union Government**

Number of Class hours:06

Learning Outcomes:

1. Discuss the Structure of the IndianUnion Government (K2).
2. Memorize the Role and Power of President, Prime Minister and Council of Ministers of India (K1)
3. Explain the role of Lok Sabha and RajyaSabha (K2)

Detailed content of the unit:

1. Structure of the IndianUnion
2. President – Role andPower
3. Prime Minister and Council ofMinisters
4. Lok Sabha and RajyaSabha

Module: 3 – **State Government**

Number of Class hours:06

Learning Outcomes:

1. Memorize the Role and Power of Governor, Chief Minister and Council ofMinisters of a state(K1)
2. Explain the role of StateSecretariat (K2)

Detailed content of the unit:

1. Governor – Role andPower
2. Chief Minister and Council ofMinisters
3. StateSecretariat

Module: 4 – **Local Administration**

Number of Class hours:06

Learning Outcomes:

1. Describe the role of District Administration (K2)
2. Explain the role of MunicipalCorporation (K2)
3. Discuss the role of Zila Panchayat (K2)

<u>Detailed content of the unit:</u>
1. DistrictAdministration
2. MunicipalCorporation
3. Zila Panchayat

Module: 5 – Election Commission

Number of Class hours:06
Learning Outcomes:
1. Explain the Role andFunctioning of Election Commission (K2)
2. Classify the role and functioning of Chief ElectionCommissioner and State Election Commissioner (K2).

<u>Detailed content of the unit:</u>
1. Role andFunctioning of Election commission
2. Chief ElectionCommissioner
3. State ElectionCommission

Suggested Learning Resources:

S. No.	Title of Book	Author	Publication
1.	Ethics and Politics of the In- dian Constitution	Rajeev Bhargava	Oxford University Press, New Delhi, 2008
2.	The Constitution of India	B.L. Fadia	Sahitya Bhawan; New edition (2017)
3.	Introduction to the Consti- tution of India	DD Basu	Lexis Nexis; Twenty-Third 2018 edition

Suggested Software/Learning Websites:

a. https://www.constitution.org/cons/india/const.html
b. http://www.legislative.gov.in/constitution-of-india
c. https://www.sci.gov.in/constitution
d. https://www.toppr.com/guides/civics/the-indian-constitution/the-constitution-of-india/

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Major Project (part- II)

Course Code	CEPR-607
Course Title	Major Project (Part-II)
Number of Credits	3 (L: 0, T: 0, P: 6)
Prerequisites	Nil
Course Category	Project Work (PR)

Course Outcome:-

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

C.O. 1: Demonstrate a sound technical knowledge of their selected project topic and the knowledge, skills and attitudes of a professional engineer (K2).

C.O. 2: Develop the skill of working in a Team (K3).

C.O. 3: Design engineering solutions to complex problems utilising a systems approach (K6).

C.O. 4: Design the solution of an engineering project involving latest tools and techniques (K6).

C.O. 5: Develop the skill of effective communication with engineers and the community at large in written an oral forms (K3).

Course Content:-

The major project topic should be selected / chosen to ensure the satisfaction of the urgent need to establish a direct link between education, national development and productivity and thus reduce the gap between the world of work and the world of study. The course should provide the scope to develop the following by the students-

1) Develop sound knowledge about the domain of the project work.
2) Perform detailed study about various components of a project.
3) Learn to be an important member of a team for successful execution of a project work.
4) Study about methodologies and professional way of documentation and communication related to project work.
5) Develop idea about problem formulation, finding the solution of a complex engineering problem.
6) Develop project report as per the suggested format to communicate the findings of the project work.
7) Acquire the skill of effective oral communication to the fellow engineers and people in the society at large.
8) Knowledge of how to organize, scope, plan, do and act within a project thesis.
9) Familiarity with specific tools (i.e. hardware equipment and software) relevant to the project selected.
10) Demonstrate the implementation of a major project work.

Seminar

Course Code	CSSE608
Course Title	Seminar
Number of Credits	1 (L: 0, T: 0, P: 1)
Prerequisites	Nil
Course Category	Seminar presentation

Course Outcome:-

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

C.O.1: Demonstrate a thorough and systematic understanding of a seminar topic (K2).

C.O. 2: Identify the methodologies and professional way of documentation and communication (K3).

C.O.3: Demonstrate the ability to construct a report consistent with expectations of the topic, including an appropriate organization, style, voice, and tone (K3).

C.O.4: Develop the ability to follow discussions, oral arguments, and presentations, noting main points or evidence and tracking through different comments given by the audience (K3).

C.O.5: Developthe communication skill as a speaker (K3).

Course Content:-

The seminar topics may be any aspect of the science and technology, entrepreneurship or any contemporary social issues to be solved by specific branch of engineering and technology (For example, Water logging problems in a particular city may be a seminar topic for Civil Engineering Students) must be approved by the instructor in advance.

The course should have the following-

7) Practice speaking in front of a scientific audience.
8) Explore topics in detail.
9) Research topics and organize presentations.
10) To improve as speakers, each student will receive feedback from the fellow students and the instructor.
11) PowerPoint, Key Note or overheads are acceptable media for Visual aids. Visual aids should look professional and be readable in the entire room; use spell check and proofread for typographical errors.
12) Students have to submit a hard copy contains detailed outline (4-5 pages) of their presentation and also a brief abstract (one or two paragraphs; **250 words max.**) describing their presentation.
13) Each student will give 20-minute presentations followed by 3 minutes of question-answer session.

Proposal Seminar Format for Students:

- Introduce yourself.
- Give an introduction and background information on your topic. What relevant research has been performed previously?
- State the problem(s) that remain unanswered.
- Clearly state your objectives and give the specific hypotheses you wish to test.
- Describe the methodology you will use to test your hypotheses. Be sure you fully understand your chosen methods. Give reasons why you chose these methods over other approaches.
- Present any data you have collected thus far.
- Describe what remains to be done, and what you expect to find.
- Explain the significance of your findings (or potential future findings).

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