



Shri Shamrao Patil (Yadavkar) Educational & Charitable Trust's
Sharad Institute of Technology College of Engineering
(An Autonomous Institute)
Yadav (Ichalkaranji)-416121, Dist. – Kolhapur

Teaching and Evaluation Scheme for Final Year B. Tech

Department of Electronics and Computer Engineering
Semester: VIII





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Department: Electronics & Computer Engineering

Rev: Course Structure /00/2021-22

Class: Final Year B. Tech.

Semester: VIII

Course Code	Course Type	Course	Teaching Scheme				Evaluation Scheme					Credits
			L	T	P	Total Hrs.	CA1	CA2	MSE	ESE	Total	
EC801	HSMC	Self-Learning Course 1*	-	-	-	-	15	15	20	50	100	3
EC802	PEC	Self-Learning Course 2*	-	-	-	-	15	15	20	50	100	3
IFT03	PROJ	Internship*	-	-	-	-	50	50	-	100	200	10
Total							80	80	40	200	400	16

Self-Learning Course 1* - Management

- EC 801A- Principles of Management
- EC 801B- Entrepreneurship Essentials
- EC 801C- Leadership and Team Effectiveness
- EC 801D- E-Business

Self-Learning Course 2* - Electronics & Computer Engineering

- EC 802A- Natural Language Processing
- EC 802B- Block chain & its applications
- EC 802C- Communication Networks
- EC 802D- Advanced Computer Networks



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Important Note: * indicates that the same course or title may not be available in NPTEL SWAYAM catalogue, then course from same domain or category whichever available on NPTEL SWAYAM catalogue will be Offered.

- Internship: Student need to complete internship 18-20 weeks as per AICTE guidelines.



Self-Learning Course 1

EC801A	HSMC	Principles of Management	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction to Management: Management – An Emerging Profession, Definition, Nature, Scope, Purpose, and characteristics of Management, Functions, roles, skills of an effective Manager	[3]
Week 2: Evolution of Management Thought : Classical Theory, Scientific Management , Management Process or Administrative Management, Bureaucracy, Behavioural Science Approach, Quantitative Approach, Systems Approach, Contingency Approach, Operational Approach	[3]
Week 3: Types of Plans, Planning Process, Introduction to Strategic Management, Types of Strategies, Understanding environment of business: Environmental appraisal – Industry Analysis - Porter’s Model of competitive advantage, analysis of organisational resources and capabilities	[3]
Week 4: Forecasting and Premising : Introduction to Forecasting, Essential Components in Business Forecasting, Determinants of Business Forecasts, Benefits of Forecasting, Techniques of Forecasting, Limitations of Forecasting	[3]
Week 5: Decision-making : Introduction, Components of Decision-making, Decision- making Process, Group Decision-making, Creativity Problem-solving.	[3]
Week 6: Management by Objectives and Styles of Management : Core Concepts of MBO, Characteristics of Management by Objectives, Process of MBO, Defining the Goal, Action Plan, Final Review, Benefits of Management by Objectives, Limitations of Management by Objectives, Styles of Management, American Style of Management, Japanese Style of Management, Indian Style of Management	[3]
Week 7: Organizing and Directing: Introduction, Organizational Design, Hierarchical Systems , Organization Structure, Types of Organization Structure, Formal and Informal Organization, Factors Determining Span of Management, Centralization and Decentralization, Span of control, Understanding authority and responsibility, Principles of Delegation, Authority, Developing a culture of Innovation and performance	[3]



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Week 8: Staffing and Coordination: Introduction, Human Resource Management, Recent Trends in HRM, Technology in HRM, Economic Challenges, Workforce Diversity, Concept of Coordination, Need for Coordination, Importance of Coordination, Principles of Coordination, Coordination Process, Types of Coordination, Issues and Systems Approach to Coordination, Techniques of Coordination	[3]
Week 9: Career Development Strategy: Introduction, Concept and Elements of Career, Overview of Career Development, Significance and Advantages of Career Development, Objectives of Career Development, Types of Career Development Programmes, Different Stages or Cycles of Career Development Process, Career Anchors, Steps in the Career Planning Process	[3]
Week 10: Leadership styles of Managers: Leadership Concept, Nature, Importance, Attributes of a leader, Role of a leader in demonstrating awareness of legal, personnel, and strategic issues relating to globalization, culture and gender diversity in an organization, Role of leader in conflict resolution and negotiations	[3]
Week 11: Organizational Communication: Communication in Organizations: Introduction, Importance of Communication in the Workplace; Understanding Communication Process, Barriers to Communication, Use of tone, language and styles in Communication, Role of Perception in influencing communication, Role of culture in communication	[3]
Week 12: Change management: Concept of change, change as a natural process, Importance & Causes of change – social, economic, technological, organizational, Developing a climate for learning, Concept of learning organizations. Challenges of Contemporary Business: Role of Ethics, Corporate social responsibility, and environmental issues.	[3]
Reference Books: <ol style="list-style-type: none">1. Stephen P. Robbins, David A. Decenzo, 2016. Fundamentals of Management, Pearson Education, 9th Edition2. Harold Koontz, O'Donnell and Heinz Weihrich, 2012. Essentials of Management. New Delhi, 9th edition, Tata McGraw Hill3. Management Fundamentals: Concepts, Applications, & Skill Development, 6th edition, Sage. 20144. Richard L. Daft, Principles Of Management, Cengage Learning. 20095. Robbins, Management, 9th edition Pearson Education. 2008	



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EC 801B	HSMC	Entrepreneurship Essentials	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction, Dhirubhai Ambani & Sofia Myths & Realities about entrepreneurship entrepreneurial qualities Why start-ups fail?	[3]
Week 2: Mission, vision, entrepreneurial qualities – I Mission, vision, entrepreneurial qualities – II Value proposition Business Model canvas Business model generation	[3]
Week 3: Competitive advantage Lean start-up – 1 Lean start-up – 2 Team and early recruit Legal forms of business	[3]
Week 4: Marketing management 1 Marketing management 2 Market research –I Market research –II Market research –Example	[3]
Week 5: Introduction to financial statements Profit & Loss statement Balance sheet Cash flow Example – 1 Example – 2 Cost-volume-profit & Bread-Even analysis Capital budgeting	[3]
Week 6:	[3]



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Business plan-I Business plan-II Pitching Go-to-market strategies Does & Don'ts	
Week 7: How to innovate Design Thinking Design-Driven Innovation, Systems thinking Open innovation, TRIZ How to start a start-up?	[3]
Week 8: Government incentives for entrepreneurship (1 lecture) Incubation, acceleration Funding new ventures – bootstrapping, crowd sourcing, angel investors, VCs, debt financing (3), due diligence Legal aspects of business (IPR, GST, Labour law)	[3]
Week 9: Cost, volume, profit and break-even analysis Margin of safety and degree of operating leverage Capital budgeting for comparing projects or opportunities Product costing Product pricing	[3]
Week 10: Funding new ventures – bootstrapping, crowd sourcing, Angel investors, VCs, debt financing (3), and due diligence Incubation and acceleration Government incentives for entrepreneurship Project cost and Financial Closure	[3]
Week 11: Dos & Dons in entrepreneurship Growth Hacking Growth Strategy Legal aspects of business (IPR, GST, Labor law) Negotiation skill	[3]
Week 12: Human Resource management in startups Pivoting Entrepreneurial cases Risk assessment and analysis Strategy management for entrepreneurial ventures Factors driving success and failure of ventures Concluding remarks	[3]
Reference Books:	



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1. Effective Entrepreneurial Management: Strategy, Planning, Risk Management, and Organization - Robert D. Hisrich • VelandRamadani, Springer (2017)
2. Entrepreneurship- Theory, Process Practice –by Kuratko &Hodgetts, Thompson South- western Publication
3. Entrepreneurship –by Robert D. Hisrich (Edition-9)



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EC801 C	HSMC	Leadership and Team Effectiveness	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction to Leadership & Team Management; Leadership Myths; Interactional Framework for analyzing leadership; Leadership Development: The First 90 Days as a Leader; Leader Development- The Action-Observation-Reflection Model	[3]
Week 2: LMX Theory and Normative Decision Model; Situational Leadership Model; Contingency Model and Path Goal Theory; Emotional Approach Charismatic and Transformational Leadership; Leadership for Tomorrow	[3]
Week 3: Leadership Attributes; Personality Traits and Leadership; Personality Types and Leadership; Intelligence and Leadership; Emotional Intelligence and Leadership	[3]
Week 4: Power and Leadership; The art of influence in leadership; Leadership and “Doing the Right Things; Character-Based Approach to Leadership; Role of Ethics and Values in Organisational Leadership	[3]
Week 5: Leadership Behaviour; Leadership Pipeline; Assessing Leadership Behaviors: Multi-rater Feedback Instruments; The Dark Side of; Leadership- Destructive Leadership; Managerial Incompetence and Derailment Conflict Management	[3]
Week 6: Negotiation and Leadership; Leadership under a crisis situation; The Situation and the Environment; Culture and Leadership; Global Leadership	[3]
Week 7: Motivation and Leadership; Introduction to Groups and Teams; Characteristics of Leader, Follower and Situation; Group Dynamics; Team Formation	[3]
Week 8: Delegation and Empowerment; Leading teams: Enhancing teamwork within a group; The leader’s role in team-based organizations; Leader actions that foster Teamwork Effectiveness; Offsite training and team development	[3]
Week 9: Understanding Team processes and Team Coaching; Team decision making and conflict	[3]



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management; Virtual teams; Managing Multicultural teams; Building great teams	
Week 10: Experiential Learning; Action Learning; Development Planning: GAP Analysis; Coaching and Mentoring; Women in Leadership Roles	[3]
Week 11: Building Effective Relationship with subordinates and peers; Fostering Followers satisfaction; The Art of Communication; Setting Goals and Providing Constructive Feedback; Enhancing Creativity problem solving skills	[3]
Week 12: Building High-Performance Teams: The Rocket Model; Building Credibility and Trust; Skills for Developing Others; Team Building at the Top; Community Leadership	[3]
Reference Books: 1. Leadership: Enhancing the lessons of experience by Hughes, R.L., Ginnett, R.C., & Curphy, G.J. (2019), 9th Edition, McGraw Hill Education, Chennai, India.	



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EC801D	HSMC	E-Business	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction to E-Business	[3]
Week 2: Making Functional Areas E-Business Enabled : Value chain and supply chain, inter and intra organizational business processes, ERP	[3]
Week 3: Making Functional Areas E-Business Enabled : E-Procurement	[3]
Week 4: Making Functional Areas E-Business Enabled : E-marketing, E-Selling, E- Supply Chain Management	[3]
Week 5: Technologies for E-Business: Internet and Web based system	[3]
Week 6: Technologies for E-Business: Security and payment systems	[3]
Week 7: Technologies for E-Business: Supply chain integration technologies (EDI, RFID, Sensors, IoT, GPS, GIS)	[3]
Week 8: Technologies for E-Business: Supply chain integration technologies (Web services and cloud)	[3]
Week 9: Decision Support in E-Business: Web analytics	[3]
Week 10: Decision Support in E-Business: Customer behavior modeling	[3]
Week 11: Decision Support in E-Business: Auctions	[3]
Week 12: Decision Support in E-Business: Recommender systems	[3]

Reference Books:

1. Management Information Systems: Managing the Digital Firm, Laudon and Laudon, Pearson
2. Scaling for E-Business, Menasce & Almeida, PHI
3. eBusiness & eCommerce – Managing the Digital Value Chain, Meier & Stormer, Springer
4. eBook is available in springerlink.com
5. Some reference books, Internet Resources, and Research Papers



Self-Learning Course 2

EC 802A	PEC	Natural Language Processing	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture: NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction and Basic Text Processing	[3]
Week 2: Spelling Correction, Language Modeling	[3]
Week 3: Advanced smoothing for language modeling, POS tagging	[3]
Week 4: Models for Sequential tagging – MaxEnt, CRF	[3]
Week 5: Syntax – Constituency Parsing	[3]
Week 6: Dependency Parsing	[3]
Week 7: Distributional Semantics	[3]
Week 8: Lexical Semantics	[3]
Week 9: Topic Models	[3]
Week 10: Entity Linking, Information Extraction	[3]
Week 11: Text Summarization, Text Classification	[3]
Week 12: Sentiment Analysis and Opinion Mining	[3]

Reference Books:

1. Chris Manning and Hinrich Schütze. Foundations of Statistical Natural Language Processing. MIT Press, Cambridge, MA: May 1999.
2. Dan Jurafsky and James Martin. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition. Prentice Hall, Second Edition, 2009.
3. Some draft chapters of the third edition are available Online <https://web.stanford.edu/~jurafsky/slp3/>



Block chain & its applications

EC 802B	PEC	Block chain & its applications	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture: NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Introduction to Blockchain Technology and its Importance	[3]
Week 2: Basic Crypto Primitives I – Cryptographic Hash	[3]
Week 3: Basic Crypto Primitives II – Digital Signature	[3]
Week 4: Evolution of the Blockchain Technology	[3]
Week 5: Elements of a Blockchain	[3]
Week 6: Blockchain Consensus I – Permissionless Models	[3]
Week 7: Blockchain Consensus II – Permissioned Models	[3]
Week 8: Smart Contract Hands On I – Ethereum Smart Contracts (Permissionless Model)	[3]
Week 9: Smart Contract Hand On II – Hyperledger Fabric (Permissioned Model)	[3]
Week 10: Decentralized Identity Management	[3]
Week 11: Blockchain Interoperability	[3]
Week 12: Blockchain Applications	[3]

Reference Books:

1. Mastering Blockchain: A deep dive into distributed ledgers, consensus protocols, smart contracts, D Apps, cryptocurrencies, Ethereum, and more, 3rd Edition, Imran Bashir, Packet Publishing,2020, ISBN: 9781839213199, book website: <https://www.packtpub.com/product/mastering-blockchain-third-edition/9781839213199>
2. Hyperledger Tutorials - <https://www.hyperledger.org/use/tutorials>
3. Ethereum Development Resources - <https://ethereum.org/en/developers>
4. Online materials and case studies



Communication Networks

EC 802C	PEC	Communication Networks	0-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: Communication Networks basics.	[3]
Week 2: Circuit Switched Networks.	[3]
Week 3: Switching Concepts.	[3]
Week 4: Layered Architecture, Introduction to DLL Layer.	[3]
Week 5: MAC Protocols – Ethernet, Wireless LAN, PON.	[3]
Week 6: Network Layer - IP.	[3]
Week 7: Routing Algorithms and Associated Protocols.	[3]
Week 8: Transport Layer.	[3]
Week 9: Introduction to Queuing.	[3]
Week 10: Application of Queuing theory for Design of Circuit Networks	[3]
Week 11: Performance analysis of CSMA CD, CSMA CA..	[3]
Week 12: Advanced Networking Concepts: Open Flow switching, SDN and NFV, Network slicing, cognitive Networks	[3]

Reference Books:

1. Computer Networks - Andrew S Tanenbaum, 4th Edition, Pearson Education.
2. Data and Computer Communications - William Stallings.
3. Data Networks - Dimitri Bertsekas and Robert G. Gallager.
4. Data Communications and Networking - Behrouz A. Forouzan, Fifth Edition TMH, 2013.



Advanced Computer Networks

EC802D	PCC	Advanced Computer Networks	3-0-0	3-Credits
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Teaching Scheme:	Evaluation Scheme:
Lecture : NIL	CA1:15Marks CA2:15Marks Mid Semester Exam: 20Marks End Semester Exam: 50Marks

Course Contents:

Week 1: High Performance Switching and Routing: Introduction, performance considerations, IP address lookup.	[3]
Week 2: Algorithms for IP address lookup and optimization, hardware implementation of address lookup	[3]
Week 3: Packet Classification: Need for packet classification and methods for packet classification.	[3]
Week 4: Differentiated Service, Quality of Service, Traffic Polishing, Traffic Shaping	[3]
Week 5: Network Softwarization - Introduction	[3]
Week 6: Software Defined Networking (SDN) - Deep Dive (Northbound and Southbound interface) , Working with Mininet + Lab Exercises with Mininet	[3]
Week 7: Network Function Virtualization (NFV) - Architecture and Concepts	[3]
Week 8: Programmable Networks - Introduction to P4, SmartNICs and P4 switches. + Lab Exercise with Mininet and BMV2 switches.	[3]
Week 9: Data Center Networking (DCN) - Introduction	[3]
Week 10: DCN - Deep Dive (Network topologies, Container Network Interfaces)	[3]
Week 11: Content Distribution on the Internet, Architectures for Information Centric Networking	[3]
Week 12: Content Naming, Routing and Caching, Security in Named Data Networking	[3]

Reference Books:

1. High Performance Switches and Routers, H. Jonathan Chao, Bin Liu, 2007, John Wiley & Sons, Inc. ISBN-10: 0-470-05367-4
2. Information-Centric Networks: A New Paradigm for the Internet (Focus Series in Networks and Telecommunications), Gabriel M. de Brito, Pedro B. Velloso, Igor M. Moraes, Wiley-ISTE; 1st edition, 2013, ISBN: 9781848214491.
3. Information-Centric Networking (ICN): Content Centric Networking (CCNx) and Named Data Networking (NDN) Terminology, B. Wissingh, C. Wood, A. Afanasyev, L. Zhang, D. Oran and C. Tschudin, RFC 8793, June 2020.
4. Software-Defined Networks: A Systems Approach, Peterson, Cascone, O'Connor, Vachuska, and Davie, Online Free Reference Book available at <https://sdn.systemsapproach.org/index.html>.
5. Cloud Networking: Understanding Cloud-based Data Centre Networks, Gary Lee (Author), Morgan Kaufmann (Publisher), 2014, ISBN-139780128007280



Internship

PRJ07	PROJ	Internship	0-0-2	10 Credits
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Teaching Scheme	Evaluation Scheme
Lectures: NA	CA-I: 50 Marks CA-II: 50 Marks Mid Semester Exam: - End Semester Exam: 100 Marks

Course Outcomes: At the end of the course, students will be able to:

CO1	Apply foundational engineering knowledge to effectively address real-world industrial challenges during the internship.
CO2	Demonstrate heightened interpersonal communication skills by interpreting and expressing ideas effectively within various professional environments.
CO3	Apply a comprehensive understanding of industry activities and functions, showcasing the ability to navigate and contribute effectively in professional engineering settings.
CO4	Analyze and synthesize experiences, observations, and learned concepts from the internship to compose technically proficient reports for effective communication.
CO5	Apply professionalism, punctuality, and responsible task completion as manifestations of a strong work ethic within the internship.
CO6	Synthesize initiative, curiosity, and active engagement, creating a mindset conducive to meaningful contributions to assigned tasks during the internship period.

Description:

An essential step in bridging the knowledge gap between academic study and practical application for engineering students is the internship program. Minimum eighteen-week internship program begins at the end of the seventh semester and allows students to interact with industries, associations for professionals, or research facilities. Strong communication skills and a basic comprehension of technical topics are essential qualities. The course outcomes place a strong emphasis on developing interpersonal communication skills, confirming technical knowledge in real-world situations, comprehending industry processes in depth, and writing thorough technical reports. It is encouraged of students to be on time, act professionally, and take initiative in their internships.

Guidelines emphasize the need of communication and call on students to promptly and politely discuss any problems they may have with coordinators and supervisors. Additionally stressed are initiative, enthusiasm, and timely execution of duties assigned. After the internship, students must put together a thorough report that is an invaluable tool. This report is evaluated according to standards including uniqueness, sufficiency, structure, and real-world application of



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principles learnt. In addition, a panel of experts evaluates the quality, efficiency, and organization of students' content delivery when assessing their presenting abilities.

A comprehensive assessment of the students' performance is provided by the overall evaluation, which also includes departmental reports and attendance records. The internship program's all-encompassing strategy attempts to promote engineering students' overall growth as they enter the workforce by instilling practical skills, industry understanding, and good communication.