1. Preliminary concepts at the basis of Blockchain [2],[3]
   1.1. Introduction to the cryptography concepts used in Blockchain [3]
      - Cryptography services (confidentiality, authentication, integrity, non-repudiation)
      - Public and private key cryptography
      - Elliptic curve cryptography
      - Hash functions
      - Elliptic curve digital signature algorithm (ECDSA)
   1.2. Distributed systems and decentralization
   1.3. Consensus (Byzantine generals problem)
2. Introduction to Blockchain [2],[3]
   2.1. What a Blockchain is
   2.2. Blockchain features
   2.3. Types of Blockchain (public, consortium, private)
   2.4. Blockchain history (why it was invented)
   2.5. Overview of today Blockchain applications
3. Bitcoin [4],[1]
   3.1. Bitcoin protocol specification
      - Overview of Bitcoin data types (transaction, scripts, adresses, blocks)
      - Transactions
      - Bitcoin network architecture
      - Bitcoin blockchain (blocks structure, Merkle trees, mining, proof of work)
   3.2. Security of transactions
   3.3. Privacy
4. Smart contract and Ethereum

References

[1] A.M. Antonopoulos. *Mastering Bitcoin: Unlocking Digital Cryptocurrencies*. O'Reilly Media, 2014. ISBN: 9781491902646. Available at: https://books.google.it/books?id=IXmrBQAAQBAJ.

[2] J.J. Bambara et al. *Blockchain: A Practical Guide to Developing Business, Law, and Technology Solutions*. McGraw-Hill Education, 2018. ISBN: 9781260115864. Available at: https://books.google.it/books?id=z5hIDwAAQBAJ.

[3] I. Bashir. *Mastering Blockchain*. Packt Publishing, 2017. ISBN: 9781787125445. Available at: https://books.google.it/books?id=dMJbMQAACAAJ.

[4] G. Karame and E. Androulaki. *Bitcoin and Blockchain Security*. Artech House information security and privacy series. Artech House, 2016. ISBN: 9781630810139. Available at: https://books.google.it/books?id=b%5C_nwjwEACAAJ.