

Studies Plan

Cyber security 2024-25

Block "Projects & SHS"

| Courses | | | Master 1 | | | | | Master 2 | | | | | Exam Session | Exam | Credit | | | |
|---------|---|-------|--------------|----------------|----|---|---|----------|---|-----|---|---|--------------|------|--------|------------|---------------------|----|
| Lang. | Code | Sect. | Teacher | Specialization | En | L | T | P | I | C | E | L | T | P | I | | | |
| | HSS : Introduction to project SHS | | | | | | | | | | | | | | | | | |
| | HSS : Project SHS | | | | | | | | | | | | | | | | | |
| | Research project in Cyber security | | | | | | | | | | | | | | | | | |
| E | CS-496 | IN | Profs divers | | | | | | | 12h | | | | | 12h | Sum Win | During the semester | 12 |

Group 1

| Courses | | | Master 1 | | | | | Master 2 | | | | | Exam Session | Exam | Credit | | | |
|---------|--|-------|-----------------------|----------------|----|----|----|----------|----|----|----|----|--------------|------|--------|-----|---------|---|
| Lang. | Code | Sect. | Teacher | Specialization | En | L | T | P | I | C | E | L | T | P | I | | | |
| | Advanced computer architecture | | | | | | | | | | | | | | | | | |
| E | CS-470 | IN | Ienne | | | | | | | 3h | 2h | | | | | Sum | Written | 8 |
| | Advanced topics on privacy enhancing technologies | | | | | | | | | | | | | | | | | |
| E | CS-523 | IN | Stadler Troncoso | | | | | | | 3h | 1h | | 2h | | | Sum | Written | 8 |
| | Algorithms II | | | | | | | | | | | | | | | | | |
| E | CS-450 | IN | Kapralov Svensson | | | 4h | 3h | | | | | | | | | Win | Written | 8 |
| | Cryptography and security | | | | | | | | | | | | | | | | | |
| E | COM-401 | SC | Vaudenay | | | 4h | 2h | | | | | | | | | Win | Written | 8 |
| | Decentralized systems engineering | | | | | | | | | | | | | | | | | |
| E | CS-438 | IN | Borsò-Tan Ford | | | 2h | 2h | | 2h | | | | | | | Win | Written | 8 |
| | Distributed algorithms | | | | | | | | | | | | | | | | | |
| E | CS-451 | SC | Guerraoui | | | 2h | 1h | 3h | | | | | | | | Win | Written | 8 |
| | Foundations of software | | | | | | | | | | | | | | | | | |
| E | CS-452 | IN | Bourgeat Odersky | | | | | | | 3h | 2h | | 2h | | | Sum | Written | 8 |
| | Information security and privacy | | | | | | | | | | | | | | | | | |
| E | COM-402 | IN | Payer | | | 3h | 1h | 2h | | | | | | | | Win | Written | 8 |
| | Machine learning | | | | | | | | | | | | | | | | | |
| E | CS-433 | IN | Flammarion Jaggi | | | 4h | 2h | 2h | | | | | | | | Win | Written | 8 |
| | Systems for data management and data science | | | | | | | | | | | | | | | | | |
| E | CS-460 | IN | Ailamaki Kermarrec | | | | | | | 2h | 2h | 2h | | | | Sum | Written | 8 |
| | TCP/IP networking | | | | | | | | | | | | | | | | | |
| E | COM-407 | SC | Nikolopoulos | | | 2h | 2h | 2h | | | | | | | | Win | Written | 8 |

Group 2 : Options

| Courses | | | Master 1 | | | | | Master 2 | | | | | Exam Session | Exam | Credit | | | |
|---------|---------------------------------------|-------|----------|----------------|----|---|---|----------|---|----|----|---|--------------|------|--------|-----|---------------------|---|
| Lang. | Code | Sect. | Teacher | Specialization | En | L | T | P | I | C | E | L | T | P | I | | | |
| | Advanced compiler construction | | | | | | | | | | | | | | | | | |
| E | CS-420 | IN | Schinz | | | | | | | 2h | | | 2h | | | Sum | During the semester | 6 |
| | Advanced computer graphics | | | | | | | | | | | | | | | | | |
| E | CS-440 | IN | | | | | | | | 2h | 1h | | 1h | 1h | | Sum | During the semester | 6 |
| | Advanced cryptography | | | | | | | | | | | | | | | | | |
| E | COM-501 | SC | Vaudenay | | | | | | | 2h | 2h | | | | | Sum | Written | 6 |

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|---|--|-----|---------------------|----|----------|-----|-----------------------|
| | Advanced multiprocessor architecture | | | | | | |
| E | CS-471 | IN | Falsafi | 4h | 8h | Win | During the 8 semester |
| | Advanced operating systems | | | | | | |
| E | CS-477 | IN | Kashyap | 2h | 1h 2h | Win | Written 6 |
| | Advanced probability and applications | | | | | | |
| E | COM-417 | SC | Shkel | 4h | 2h | Win | Written 8 |
| | AI product management | | | | | | |
| E | CS-500 | IN | Kaboli Zamir | 2h | 2h 3h | Win | During the 6 semester |
| | Applied biomedical signal processing | | | | | | |
| E | EE-512 | EL | Lemay | 2h | 2h | Win | Written 4 |
| | Applied biostatistics | | | | | | |
| E | MATH-493 | MA | Goldstein | | 2h 2h | Sum | During the 5 semester |
| | Applied data analysis | | | | | | |
| E | CS-401 | SC | Brbic | 2h | 2h | Win | Written 8 |
| | Automatic speech processing | | | | | | |
| E | EE-554 | EL | Magimai Doss | 2h | 2h | Win | Written 4 |
| | Basics of mobile robotics | | | | | | |
| E | MICRO-452 | MT | Mondada | 1h | 1h 2h | Win | Written 4 |
| | Causal inference | | | | | | |
| E | MGT-416 | MTE | Kiyavash | | 2h 1h | Sum | During the 4 semester |
| | Causal thinking | | | | | | |
| E | MATH-352 | MA | Stensrud | 2h | 2h | Win | Written 5 |
| | Cellular biology and biochemistry for engineers | | | | | | |
| E | BIO-105 | SV | Zufferey | 2h | 2h | Win | Written 4 |
| | Computational complexity | | | | | | |
| E | CS-524 | IN | Göös | 2h | 2h | Win | During the 6 semester |
| | Computational neurosciences: neuronal dynamics | | | | | | |
| E | NX-465 | NX | Gerstner | | 2h 2h | Sum | Written 5 |
| | Computational photography | | | | | | |
| E | CS-413 | SC | Süsstrunk | | 2h 2h | Sum | During the 6 semester |
| | Computer vision | | | | | | |
| E | CS-442 | IN | Fua | | 2h 1h | Sum | Written 6 |
| | Concurrent computing | | | | | | |
| E | CS-453 | SC | Guerraoui | 2h | 1h 2h | Win | Written 6 |
| | Data visualization | | | | | | |
| E | COM-480 | SC | Vuillon | | 2h 2h | Sum | During the 6 semester |
| | Deep learning | | | | | | |
| E | EE-559 | EL | Cavallaro | | 2h 2h | Sum | During the 4 semester |
| | Deep reinforcement learning | | | | | | |
| E | CS-456 | IN | | | 2h 1h 1h | Sum | Written 6 |
| | Design technologies for integrated systems | | | | | | |
| E | CS-472 | IN | De Micheli | 3h | 2h | Win | During the 6 semester |
| | Digital education | | | | | | |
| E | CS-411 | IN | Dillenbourg Jermann | | 2h 2h | Sum | Written 6 |
| | Distributed information systems | | | | | | |
| E | CS-423 | SC | Aberer | 2h | 1h 1h | Win | Written 6 |
| | Distributed intelligent systems | | | | | | |
| E | ENG-466 | SIE | Martinoli | 2h | 2h 1h | Win | Oral 5 |
| | Dynamical system theory for engineers | | | | | | |
| E | COM-502 | SC | Thiran | | 3h 1h | Sum | Written 6 |
| | Embedded system design | | | | | | |
| E | CS-476 | IN | Kluter | | 2h 2h | Sum | During the 6 semester |

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|---|--|----|----------------------------------|----------|----------|-----|------------|------------|
| E | Ethics and law of AI DH-415 | DH | Rochel | 2h | 2h | Win | During the | 4 |
| | | | | | | | semester | |
| E | Experience design CS-489 | IN | | 2h | 4h | Win | During the | 6 |
| | | | | | | | semester | |
| E | Formal verification CS-550 | IN | Kuncak | 2h 2h | 2h | Win | During the | 6 |
| | | | | | | | semester | |
| E | Foundations of Data Science COM-406 | IN | Gastpar Urbanke | 4h 2h | | Win | Written | 8 |
| E | Foundations of probabilistic proofs CS-459 | IN | Chiesa | 4h 1h | | Win | During the | 6 |
| | | | | | | | semester | |
| E | Gödel and recursivity MATH-483 | MA | Duparc | 2h 2h | | Win | Written | 5 |
| E | Image processing I MICRO-511 | MT | Unser Van De Ville | 3h | | Win | Written | 3 |
| E | Image processing II MICRO-512 | MT | Sage Unser Van De Ville | | 3h | Sum | Written | 3 |
| E | Industrial automation CS-487 | SC | Sommer Tournier | | 2h 1h | Sum | Oral | 3 |
| E | Information theory and coding COM-404 | SC | Telatar | 4h 2h | | Win | Written | 8 |
| E | Intelligent agents CS-430 | IN | Faltings | 3h 3h | | Win | During the | 6 |
| | | | | | | | semester | |
| E | Interaction design CS-486 | IN | Pu | | 2h 1h | 1h | Sum | During the |
| | | | | | | | semester | 6 |
| E | Interactive theorem proving CS-428 | IN | Barrière Pit-Claudel | | 2h 1h 2h | | Sum | During the |
| | | | | | | | semester | 6 |
| E | Introduction to IT consulting CS-491 | IN | Regev | | 6h | | Sum | Oral |
| | | | | | | | | 6 |
| E | Introduction to natural language processing CS-431 | IN | Bosselut Chappelier Rajman | 2h 2h | | Win | Written | 6 |
| E | Learning in neural networks CS-479 | IN | Gerstner | | 2h 1h 1h | | Sum | Oral |
| | | | | | | | | 6 |
| E | Learning theory CS-526 | IN | Macris | | 2h 2h | | Sum | Written |
| | | | | | | | | 6 |
| E | Machine learning for behavioral data CS-421 | IN | Käser | | 2h | 2h | Sum | Written |
| | | | | | | | | 6 |
| E | Markov chains and algorithmic applications COM-516 | SC | | 2h 1h 1h | | Win | Written | 6 |
| E | Mobile networks COM-405 | SC | Al Hassanieh | 3h 2h 2h | | Win | Written | 8 |
| E | Modern digital communications: a hands-on approach COM-430 | SC | Chiurtu | 2h | 2h | Win | During the | 8 |
| | | | | | | | semester | |
| E | Network machine learning EE-452 | EL | Frossard Thanou | | 2h | 2h | Sum | During the |
| | | | | | | | semester | 4 |
| E | Networks out of control COM-512 | SC | | | 2h 1h | | Sum | Written |
| | | | | | | | | 6 |
| E | Number theory II.c - Cryptography MATH-489 | MA | Jetchev | | 2h 2h | | Sum | Written |
| | | | | | | | | 5 |

