

Course number	Course Title	Term
INSE 6615	Blockchain Technology (Blended)	Winter 2023

Course Instructor	Office	E-Mail	Office Hours
Jeremy Clark	EV 9.177	j.clark@concordia.ca	Thurs at 14h on Zoom

CLASS, LAB AND TUTORIAL SCHEDULE

Section	Day	Time	Location	Instructor	E-mail
Lecture	Online (Blended Course)			Jeremy Clark	j.clark@concordia.ca
Q&As	Tues	13:15	H 670	Jeremy Clark	j.clark@concordia.ca

This is a blended course which means the lectures will be given online. The lecture videos will be available from the course website. We will occasionally have in-person classes, Q&A sessions, and/or tutorials. The schedule for these will be noted on the website.

COURSE CALENDAR DESCRIPTION

The course is on Bitcoin and blockchain technologies. The following topics will be covered (time-permitting): digital cash, hash functions, digital signatures, merkle trees linked time-stamping, blockchains, bitcoin, ethereum, smart contracts, solidity, fintech.

PREREQUISITES

None. Recommended for ISS students. Students from QSE should prepare to do background research.

TEXTBOOK AND ADDITIONAL COURSE MATERIALS

- *Required textbook(s): None*
- *Suggested Resources: will be posted on Course Website*
- *Instructor's lecture notes: will be posted on Course Website*

GRADING POLICY

Evaluation Tool	Weight
Midterm Exam	15%
Final Exam	40%
Project	35%
Assignment 1	5%
Assignment 2	5%

TENTATIVE COURSE OUTLINE

Topics	Week
Course Overview	1
Crypto I: Hash Functions	2
Crypto II: Digital Signatures	3
Crypto III: Commitments, Accumulators, Timestamping, Proof of Work	4
Blockchain: Consensus, Sybil-Resistance	5
Bitcoin I: Details	6
Bitcoin II: Details	7
Midterm Test (in-class)	8
Ethereum	9
Solidity I	10
Solidity II	11
Currency, Stablecoins, and CBDC	12
Decentralized Finance (DeFi)	13

TERM PROJECT

Details will be posted on Course Website

ON CAMPUS RESOURCES

<p>HEALTH SERVICES</p> <p>An on-campus health clinic and health promotion center with nurses and doctors.</p> <p>SGW 514-848-2424 ext. 3565 LOY 514-848-2424 ext. 3575</p>	<p>COUNSELLING AND PSYCHOLOGICAL SERVICES</p> <p>Counsellors (licensed mental health professionals) work with students to address their mental health and wellbeing needs.</p> <p>SGW 514-848-2424 ext. 3545 LOY 514 848-2424 ext. 3555</p>
<p>ACCESS CENTRE FOR STUDENTS WITH DISABILITIES</p> <p>Supports students with a variety of disability conditions (including temporary disabilities arising from illness or injury). Students receive academic support for their educational experience at Concordia.</p> <p>acsinfo@concordia.ca 514-848-2424 ext. 3525</p>	<p>SEXUAL ASSAULT RESOURCE CENTRE</p> <p>Provides confidential and non-judgemental support and services to students, staff and faculty of all genders and orientations affected by sexual violence and/or harassment.</p> <p>Jennifer Drummond, Coordinator jennifer.drummond@concordia.ca sarc@concordia.ca 514-848-2424 ext. 3353</p>
<p>STUDENT SUCCESS CENTRE</p> <p>Support network from first-year to graduation. You'll find one-on-one tutors, study groups, workshops as well as learning and career advisors</p> <p>514-848-2424, ext. 3921</p>	<p>DEAN OF STUDENTS</p> <p>Supports students to enhance their Concordia experience by engaging in student life outside the classroom.</p> <p>Terry Kyle, Manager deanofstudents.office@concordia.ca SGW 514-848-2424 ext. 3517 LOY 514-848-2424 ext. 4239</p>
<p>ABORIGINAL STUDENT RESOURCE CENTRE</p> <p>An on-campus resource for First Nations, Métis and Inuit students that helps them make the most of the many resources available at the university.</p> <p>Orenda Konwawennotion Boucher-Curotte, Coordinator orenda.boucher@concordia.ca 514-848-2424 ext. 7327</p>	<p>INTERNATIONAL STUDENTS OFFICE</p> <p>Supporting international students with immigration documents, health insurance, social events, and workshops.</p> <p>iso@concordia.ca 514-848-2424 ext. 3515</p>
<p>STUDENT ADVOCACY OFFICE</p> <p>Advocating for students facing charges under the Academic Code of Conduct or the Code of Rights and Responsibilities.</p> <p>studentadvocates@concordia.ca 514-848-2424, ext. 3992</p>	<p>MULTI-FAITH & SPIRITUALITY CENTRE</p> <p>Provides a home for all those wishing to celebrate the human spirit in the widest sense of the word, through programs, events and a quiet space for reflection.</p> <p>Ellie Hummel, Coordinator mfsc@concordia.ca 514-848-2424, ext. 3593</p>
<p>CAMPUS SECURITY</p> <p>Ensures the safety of our members and campus property through prevention, surveillance, intervention, training, and education. Provides emergency medical services.</p> <p>security@concordia.ca 514-848-3717</p> <p>(dial 1 for urgent situations; dial 2 for non-urgent situations)</p>	<p>CONCORDIA UNIVERSITY STUDENT PARENTS CENTRE</p> <p>An accessible space for student parents to study, share interests and develop a support network.</p> <p>Sumaiya Gangat, Coordinator culp@concordia.ca 514-848-2424, ext. 2431</p>

ACADEMIC HONESTY AND CODE OF CONDUCT

Violation of the Academic Code of Conduct in any form will be severely dealt with. This includes copying (even with modifications) of program segments. You must demonstrate independent thought through your submitted work. The Academic Code of Conduct of Concordia University is available at: <http://www.concordia.ca/students/academic-integrity/offences.html>

It is expected that during class discussions and in your written assignments you will communicate constructively and respectfully. Sexist, racist, homophobic, ageist, and ablest expressions will not be tolerated.

ADDENDUM

ACADEMIC CONDUCT ISSUES THAT APPLY IN GENERAL

The basic ten rules that make you a good engineer

The B. Eng. program is set to satisfy most of the requirements for your education and prepares you for a professional engineering career that requires dedication and knowledge. What you learn, and how you learn, will be used extensively in your engineering profession for the next 30 to 40 years. Therefore, the four years spent in the engineering program are crucial towards your professional formation. The first step is for you to learn to “think like an engineer” which means:

- accept responsibility for your own learning
- follow up on lecture material and homework
- learn *problem-solving skills*, not just how to solve each specific homework problem
- build a body of knowledge integrated throughout your program
- behave responsibly, ethically and professionally

One of the mainstays of being a professional engineer is a professional code of conduct and as an engineering student this starts with the Academic Code of Conduct (Article 16.3.14 of the undergraduate calendar). However, you may encounter situations that fall outside the norm and in such cases, you use your common sense.

Further, the following issues should be given serious consideration:

1) Attendance at lectures and tutorials are major learning opportunities and should not be missed. The labs represent a unique opportunity for you to acquire practical knowledge that you will need in your career. Class and tutorial attendance is important for you to comprehend the discipline and make the connections between engineering skills. You are strongly encouraged to participate in the class, ask questions and answer the instructor’s questions. Tutorials are just extensions of the classes in which application of the concepts presented during the lectures are presented and problems are practically solved.

2) The decision to write tests that are not mandatory is entirely yours. For example, midterm test are often stated in many courses as optional. However, one of the objectives of midterms is to check on your comprehension of the material and allow time for whatever action is necessary (from more study time to discontinuing a course). Plan to attend the class tests even if they are not mandatory. If you pay attention in the lectures, it will take you significantly shorter time to comprehend the material. Note also that if you are in the unfortunate position of being unable to write a final exam due to medical reasons and seek a deferral, this may not be possible if the instructor has no information indicating that you have been attending the course and assimilating the material (ie through midterms, quizzes, assignments etc).

3) Homework is usually mandatory and it has some weight in the final grade (such information is given in the course outline). Homework may also be conceived as training material for the class tests. Under all circumstances, it is highly recommended to carry out the home work on time and submit it on the prescribed date. Late submissions are not granted to individual cases regardless of the reason. This is part of the training for being in the workforce where deadlines have to be met. Please, plan your work such that you submit all the assignments and lab reports on time and in the correct place (not in the corridor or on the street!).

4) Office hours with tutors, lab instructors or class instructors are listed in the course outline/website/office doors. Please respect these office hours and in case you have a serious conflict, contact the instructor asking for a special time arrangement.

