STUDYWALKS · COURSE SYLLABUS

Information Systems — High School Course with CLEP Preparation

Every organization runs on information systems: the hardware and networks that move data, the databases and software that turn it into information, and the people and decisions that put it to work. This course covers office and enterprise systems, the internet and web, security, software development, data management and programming logic, and the social and ethical questions IT raises, one lesson at a time, with every worked number checked by computer.

CREDIT LABEL	HOURS GOAL	STUDYWALKS LEARNING HOURS	SUGGESTED OFFLINE HOURS
1.0 credit	**120 h**	**34 h**	**86 h**
high school, with the study plan	the 1.0-credit convention	measured runtime plus assessment time	reading, review and writing

34 h StudyWalks (8.6 h of lessons, 16.1 h of lectures, 9.1 h of quizzes and exams) + **86 h** suggested offline study = **120 h**. 551 lessons in 27 units; prepares for the CLEP Information Systems exam.

High school credit is granted by the homeschool parent under the state's rules. StudyWalks supplies the record: hours, scores and this syllabus. The credit label is a suggestion; the parent makes the final call.

Course contents

Unit	Title and lecture topics	Lessons	Lecture
1	**Getting Ready: The Exam and What an Information System Is** The exam · What an information system is · Data, information and the two fields · How a system works · Types, processing methods and advantage	18	29 min
2	**Hardware: Processing, Memory and Storage** The processor and its cycle · Processor speed · The board, bits and bytes · Capacity and transfer · Working memory · The hierarchy and the storage media · Growth, and one workstation	22	42 min (2 parts)
3	**Input, Output, Devices and Classes of Computers** Input and output · Peripherals and connection speed · Classes of computers · Hidden computers, choosing a class, and roles · The Internet of Things	18	30 min
4	**Operating Systems and Software** Kinds of software · The operating system at work · Files, devices, interfaces and platforms · Programming languages · Licenses and apps	20	31 min
5	**Data Representation, Files and Storage Management** Binary · Hexadecimal and character codes · Data types and structures · Kinds of data and how files are kept · Compression, memory and transfer · Aging data and the unit in one problem	21	42 min (2 parts)

Unit	Title and lecture topics	Lessons	Lecture
6	**Networks and Telecommunications** What a network is and what carries it · Network hardware · Protocols, layers and packets · Addresses · Names and web requests · Network models, value and one office	22	45 min (2 parts)
7	**Network Architectures and Wireless Technologies** Networks by reach · Enterprise networks and VPNs · Wireless links · Tags and taps · Satellites, location and the Internet of Things · Comparison, value and one organization	24	45 min (2 parts)
8	**The Internet and Online Services** Where the internet came from · Getting connected and private networks · Governance and search · Online services	21	31 min
9	**Browsers, Web Technologies and Website Development** Requesting a page · Browsers and what they keep · Structure, style and behavior · Data formats and where scripts run · Client side or server side · Building and publishing a site · Designing for users · Measuring a site and the unit in one site	22	45 min (2 parts)
10	**Productivity Software: Documents, Presentations and Suites** Suites and how to choose one · Formatting documents · Merging, reviewing and sharing · Presentations · Integration and the unit in one organization	20	30 min
11	**Spreadsheets and Desktop Databases** Cells and formulas · Functions · Cell references · Conditions, errors and charts · Analyzing a table · Desktop databases · Queries, the choice of tool, and the unit in one business	22	45 min (2 parts)
12	**Office Systems, Communication and Collaboration** Email · Other channels and choosing one · Working together · Paper, voice and managed documents · Content management and the unit in one organization	18	29 min
13	**Specialized Systems: TPS, DSS, Expert Systems, GIS and BI** Levels and decisions · Transaction processing · Management reporting · Decision support and executive systems · Knowledge management · Expert systems · Geographic information systems · Business intelligence and analysis · Specialized systems together	23	47 min (2 parts)
14	**Enterprise Systems: ERP, CRM and SCM** Silos and the ERP · Living with an ERP · Customer relationship management · Supply chain management · Three systems together	18	31 min
15	**E-Commerce and Digital Business Models** E-commerce and e-business · Transaction types · Digital business models · Systems behind online business · Digital innovation and the whole unit	20	31 min
16	**Business Strategy, Process Management and Project Management** Competitive advantage and IT · Strategies and industry analysis · Business processes · Changing processes · Systems in a process · Projects and their limits · Scheduling · Risk and the project manager · Strategy, processes and projects together	22	42 min (2 parts)
17	**Database Management Systems and SQL** Databases and the DBMS · The relational model and its keys · Design and normalization · Database models compared · Reading SQL queries · Changing and joining tables · Describing, protecting and controlling the data · Databases and SQL in one problem	24	45 min (2 parts)
18	**Data Warehousing, Data Mining, Big Data and Analytics** Analytics and the data warehouse · Loading and storing data for analysis · Big data · Data mining and analytics · Quality, governance and the whole picture	20	30 min

Unit	Title and lecture topics	Lessons	Lecture
19	**Programming Logic and Methodologies** Algorithms and control structures · Variables, types and arithmetic · Conditions and selection · Loops · Objects, languages and the whole program	20	30 min
20	**The Systems Development Life Cycle** The life cycle and its five phases · Planning and feasibility · Analysis and requirements · Design · Physical design and implementation · Maintenance and documentation · People and phase lists · The life cycle in one project	22	39 min (2 parts)
21	**Development Methodologies, Implementation and Standards** The waterfall and iterative work · Building with users · Agile, the spiral and choosing a method · Testing and going live · After go-live, licences and standards	20	30 min
22	**Malware and Threats** Threats and what malware is · Kinds of malware · Denial of service and layered defense · People as the target · Web applications and IoT devices	19	29 min
23	**Security Controls, Privacy and Disaster Recovery** Controls and proving identity · What a user may do · Encryption and integrity · Networks, remote access and databases · Devices, and where privacy begins · Personal data and privacy laws · Assessing and answering risk · Backups, continuity and recovery	22	41 min (2 parts)
24	**Cloud Computing and Emerging Technologies** What the cloud is · Service and deployment models · Cost, risk, migration and energy · Emerging technologies and AI · Blockchain, extended reality and the Internet of Things	19	30 min
25	**Economic and Business Decisions and Global Information Systems** The value and the cost of IT · Return on investment · Outsourcing · Going global · Divides, sustainability, culture and the whole unit	18	31 min
26	**Intellectual Property, Ethics, Work and Careers** Intellectual property and copyright · Fair use · Patents, trade secrets and trademarks · Licenses and open methods · Foundations of ethics · Ethics applied to data and AI · Work, careers and the whole unit	22	40 min (2 parts)
27	**Capstone: Information Systems in One Organization** The company, its hardware and its networks · Tools and business systems · Data and development · Security, ethics, the exam and the whole course	14	27 min

Assessment and grading

- **Unit quizzes.** 27 quizzes, 10 questions each, checked as the student goes, each answer with the lesson to review. Untimed; retakes are unlimited.
- **Mid exam.** 50 questions on units 1–14, drawn fresh each time and scored at the end with a breakdown by content area. Untimed; retakes are unlimited.
- **Final exam.** 100 questions, 90 minutes, on the whole course. Scored 20–80; 50 passes (67 of 100 correct, about 67%). Retakes are unlimited with a 24-hour wait, each a fresh draw.

Suggested composite grade

Part	Weight
Unit quizzes (average of best scores)	20%
Mid exam (best score)	20%
Final exam (percent correct)	60%

Suggested letter scale

Letter	Composite
A	90–100
B	80–89
C	70–79
D	60–69
F	below 60

Suggested; the parent sets the grade. A passing final is the completion standard for the course record.

Study plan

The 86 offline hours are spread over the units in proportion to each unit's StudyWalks time. For each unit: read the matching sections of *Foundations of Information Systems (OpenStax); Introduction to Computer Science (OpenStax); Workplace Software and Skills (OpenStax)*, review the unit quiz misses, and write a one-page unit summary. Log the time as you go.

Unit	Title	StudyWalks	Offline, suggested	Unit total
1	Getting Ready: The Exam and What an Information System Is	46 min	2 h 40 min	3 h 26 min
2	Hardware: Processing, Memory and Storage	1 h 3 min	3 h 40 min	4 h 43 min
3	Input, Output, Devices and Classes of Computers	46 min	2 h 40 min	3 h 26 min
4	Operating Systems and Software	49 min	2 h 50 min	3 h 39 min
5	Data Representation, Files and Storage Management	1 h 2 min	3 h 35 min	4 h 37 min
6	Networks and Telecommunications	1 h 5 min	3 h 45 min	4 h 50 min
7	Network Architectures and Wireless Technologies	1 h 8 min	3 h 55 min	5 h 3 min
8	The Internet and Online Services	51 min	3 h	3 h 51 min
Lessons and lectures		**24 h 40 min**	**86 h**	**110 h 40 min**
Quizzes, mid exam and final (stated time)		**9 h 6 min**	**—**	**9 h 6 min**

Unit	Title	StudyWalks	Offline, suggested	Unit total
9	Browsers, Web Technologies and Website Development	1 h 6 min	3 h 50 min	4 h 56 min
10	Productivity Software: Documents, Presentations and Suites	49 min	2 h 50 min	3 h 39 min
11	Spreadsheets and Desktop Databases	1 h 5 min	3 h 45 min	4 h 50 min
12	Office Systems, Communication and Collaboration	46 min	2 h 40 min	3 h 26 min
13	Specialized Systems: TPS, DSS, Expert Systems, GIS and BI	1 h 8 min	3 h 55 min	5 h 3 min
14	Enterprise Systems: ERP, CRM and SCM	47 min	2 h 45 min	3 h 32 min
15	E-Commerce and Digital Business Models	50 min	2 h 55 min	3 h 45 min
16	Business Strategy, Process Management and Project Management	1 h 2 min	3 h 35 min	4 h 37 min
17	Database Management Systems and SQL	1 h 7 min	3 h 55 min	5 h 2 min
18	Data Warehousing, Data Mining, Big Data and Analytics	49 min	2 h 50 min	3 h 39 min
19	Programming Logic and Methodologies	48 min	2 h 50 min	3 h 38 min
20	The Systems Development Life Cycle	1 h	3 h 30 min	4 h 30 min
21	Development Methodologies, Implementation and Standards	49 min	2 h 50 min	3 h 39 min
22	Malware and Threats	46 min	2 h 40 min	3 h 26 min
23	Security Controls, Privacy and Disaster Recovery	1 h 2 min	3 h 35 min	4 h 37 min
24	Cloud Computing and Emerging Technologies	48 min	2 h 50 min	3 h 38 min
25	Economic and Business Decisions and Global Information Systems	48 min	2 h 50 min	3 h 38 min
26	Intellectual Property, Ethics, Work and Careers	1 h	3 h 30 min	4 h 30 min
27	Capstone: Information Systems in One Organization	40 min	2 h 20 min	3 h
Lessons and lectures		**24 h 40 min**	**86 h**	**110 h 40 min**
Quizzes, mid exam and final (stated time)		**9 h 6 min**	**—**	**9 h 6 min**

Unit times are the unit's lecture runtime plus its lessons at the course's measured average lesson length; totals can differ from the learning hours by rounding.

Sources

- **Anchor:** *Foundations of Information Systems*. OpenStax, Rice University. CC BY-NC-SA 4.0
- **Witness:** *Introduction to Computer Science*. OpenStax, Rice University. CC BY-NC-SA 4.0
- **Witness:** *Workplace Software and Skills*. OpenStax, Rice University. CC BY-NC-SA 4.0
- **Witness:** David T. Bourgeois et al. *Information Systems for Business and Beyond* (2019). eCampusOntario open library. CC BY-NC 4.0
- **Witness:** *Information Systems: A Manager's Guide to Harnessing Technology*, version 2.0. Saylor Academy. CC BY-NC-SA 3.0

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