



Programme Aim and Title	BSc(Hons) Computer Engineering and Software Systems.
Intermediate Awards Available	BSc, DipHE, CertHE, University Certificate
Teaching Institution(s)	Ain Shams University, Cairo, Egypt
Alternative Teaching Institutions (for local arrangements see final section of this specification)	N/A
UEL Academic School	Architecture, Computing and Engineering
UCAS Code	N/A
Professional Body Accreditation	N/A
QAABenchmark Statements	Computing
Additional Versions of this Programme	N/A
Date Specification Last Updated	June 2018

### Programme Aims and Learning Outcomes

#### Programme Aims:

The Computer Engineering and Software Systems (CESS) Program focuses extensively on software engineering with a strong emphasis on computer engineering. The CESS programme opens a whole world of career opportunities to its graduates in software product lines, mobile and pervasive computing, cloud computing, embedded systems, multimedia, data analytics, and much more. The CESS program will meet the increasing demand for this specialization to meet the market needs at the national, regional, and international levels.

#### What you will learn:

##### Knowledge

- Apply systematic, disciplined, quantifiable approaches to the cost-effective development, operation and maintenance of software systems to the satisfaction of their beneficiaries.
- Build software solutions using different technologies, architectures, and life-cycle approaches in the context of different organizational structures, with demonstrated programming expertise.
- Foster the development, adoption, and sustained use of standards of excellence for computer and software engineering practices.
- Have a solid understanding of software development life cycles.

##### Thinking Skills

- Utilize the methodologies of hardware, software integration, and networking.



- Have hands-on experience of software analysis, modelling, design, and quality assurance of software systems.
- Evaluate software/hardware/networks engineering projects.

### Subject-Based Practical Skills

- Write secure computer programs on professional levels achieving acceptable quality measures in software development.
- Apply software engineering methodologies in the different phases of the software engineering life-cycle.
- Apply the concepts of cloud computing, high-performance computing, mobile computing, and pervasive computing concepts in the appropriate environments.
- Analyse big-data systems.
- Utilize big-data analytics in cloud computing environments to solve real-world problems.
- Use different security measures and forensics tools in computing and networking systems.

### Skills for life and work (general skills)

- Communicate effectively and think critically about a wide range of issues arising in the context of working constructively on software and computer engineering projects.
- Communication Skills, such as report writing and presentations
- Monitor progress critically reflect on their performance in using the relevant skill, and adapt their strategy, as necessary, to achieve the quality of outcomes required.
- Time management
- Learning and working both independently and in groups
- Demonstrate wider research skills to aid in the development of a cumulative element of original work.

## Learning and Teaching

### Knowledge is developed through

- Online discussions and activities
- Participation in lectures, tutorials and workshops with feedback
- Directed, guided and general reading
- Primary and secondary research, e.g. using the Internet or Learning Resources Centre

### Thinking skills are developed through

- Reflective activities with feedback
- Online discussions and activities
- Successful completion of set assessment tasks



- Self-appraisal and self-evaluation
- Critical evaluation of concepts, assumptions, arguments and data

Practical skills are developed through

- Use of general IT applications such as word processors and spreadsheets
- Use of specialised IT applications such as software development tools and environments and CASE tools
- Research skills-based activities with feedback Skills for life and work (general skills) are developed through
- Planning activities with feedback

### Assessment

The assessment methods to achieve the different learning outcomes are as follows:

Knowledge is assessed by

- Project work
- Coursework
- Reports
- Examinations
- Individual oral presentations

Thinking skills are assessed by

- Project work
- Coursework
- Time constraint assessments
- Individual/Group oral presentations

Practical skills are assessed by

- Project work
- Practical reports
- Portfolio completion
- Timed controlled assessments

Skills for life and work (general skills) are assessed by

- Project work
- Group work
- Coursework



Students with disabilities and/or particular learning needs should discuss assessments with the Programme Leader to ensure they are able to fully engage with all assessment within the programme.

### Work or Study Placements

We encourage full time students to seek work experience during their academic course, during the summer vacations

Training could be performed in an industrial/service facility related to the student's program, and must be under the full supervision of the faculty according to the requirements stipulated in Article (37) of the Credit Hour Educational Programmes (CHEP) bylaws.

### Programme Structure

The Programme follows the British system: One academic year covers 120 credits.

All programmes are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

- 3 Equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree programme.
- 4 Equivalent in standard to the first year of a full-time undergraduate degree programme.
- 5 Equivalent in standard to the second year of a full-time undergraduate degree programme.
- 6 Equivalent in standard to the third year of a full-time undergraduate degree programme.
- 7 Equivalent in standard to a Masters degree.

Programmes are made up of modules that are each credit weighted.



The module structure of this programme:

Level	Year	Code	Module title	credit	Core/Option
3	1	CA3101	Mathematics for Computing and Engineering	30	Core
3	1	CA3102	Circuit Design	30	Core
3	1	CA3103	Software Development 1	30	Core
3	1	CA3104	Engineering Materials	15	Core
3	1	CA3105	Computer Architecture	15	Core
4	2	CA4101	Software Development 2	30	Core
4	2	CA4102	Database Systems	15	Core
4	2	CA4103	Engineering Systems	30	Core
4	2	CA4104	Thermodynamics	15	Core
4	2	CA4105	Operating Systems	15	Core
4	2	CA4106	Design of Compilers	15	Core
5	3	CA5101	Embedded Systems	30	Core
5	3	CA5102	Software Engineering 1	30	Core
5	3	CA5103	Computer Networks and Distributed Systems	30	Core
5	3	CA5104	Computer Vision	15	Core
5	3	CA5105	Internet Programming	15	Core
6	4	CA6101	High-Performance and Mobile Computing	30	Core
6	4	CA6102	Software Engineering 2	30	Core
6	4	CA6103	Computer and Network Security	15	Core
6	4	CA6104	Graduation Project	45	Core

The overall credit-rating of this programme is 480 credits. If for some reason you are unable to achieve this credit you may be entitled to an intermediate award, the level of the award will depend on the amount of credit you have accumulated.

### Programme Specific Regulations

NA



## Typical Duration

This is a full-time study programme. The minimum allowed study duration is 4 Years / 8 terms.

## Further Information

More information about this programme is available from:

- The ASU web site (<http://eng.asu.edu.eg>)
- The programme handbook
- Module study guides
- For further information, contact the CESS-CHEP programme via email: [CESS.Chep@eng.asu.edu.eg](mailto:CESS.Chep@eng.asu.edu.eg)

All Faculty of Engineering, Ain Shams University programmes are subject to thorough programme approval procedures and quality check by the National Authority for Quality Assurance and Accreditation in Education (NAQAAE) before they are allowed to commence. We also constantly monitor, review and enhance our programmes by listening to student and employer views and the views of external examiners and advisors.

## Alternative Options of Delivery

NA