**American University in Central Asia**

**Department: Software Engineering**

CHECKLIST FOR ADMITS 2025

| **General Education Courses** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Course Name** | **Course abbr.** | **Course ID** | **Credits** | **Semester** | **Prerequisites** | **Comments** |
| **Academic Orientation program:**  **August 11- August 22, 2025** |  |  | **2\*** |  |  | **Outside of 240** |
| First Year Seminar I | FYS |  | 4 |  | none |  |
| First Year Seminar II | FYS |  | 4 |  | FYS 1 |  |
| Introduction to Philosophy I (part of FYS) | FYS |  | 2 |  | none |  |
| Introduction to Philosophy II (part of FYS) | FYS |  | 2 |  | Phil 1 |  |
| English Composition I | ECL |  | 6 |  | none |  |
| English Composition II | ECL |  | 6 |  | ECL 1 |  |
| Kyrgyz Language and Literature I | KLL |  | 4 |  | none |  |
| Kyrgyz Language and Literature II | KLL |  | 4 |  | KLL I |  |
| Russian Language I | RUS |  | 2 |  | none |  |
| Russian Language II | RUS |  | 2 |  | RUS 1 |  |
| History of Kyrgyzstan | HIST |  | 4 |  | none |  |
| Geography of Kyrgyzstan | GEO |  | 2 |  | none |  |
| Manas Studies |  |  | 2 |  | none |  |
| Natural Sciences/Second Year Seminar\*\* | NTR, ECL, GEO,AGEO |  | 6 |  |  |  |
| Mathematics and Quantitative reasoning  *-Linear Algebra & Analytic Geometry for AMI/SFW*  *-Mathematical Analysis I for AMI/SFW*  *-Theory of probabilities and Math. Statistics* | MAT-131.2  MAT-233.2  MAT-307 | 3828  3855  3215 | 18 |  | None  Lin. Algebra  Lin. Algebra |  |
| Arts/Second Year Seminar\*\* | ART |  | 12 |  |  |  |
| Humanities/Second Year Seminar\*\*  *Modern Foreign Languages, History, Literature, Culture from outside the student’s major* | SYS/HUM |  | 12 |  |  |  |
| Social Sciences/Second Year Seminar\*\*  *Psy, Soc, ICP, Econ, IBL, Anth, ES. From outside the student’s major* | SYS/SS, SOC, PSY, ES etc. |  | 12 |  |  |  |
| Sports | SPO |  | 0 |  | none | 400 hours |
| **Total GenEd credits** |  |  | 104 [2] credits | |  |  |
| **\*** Credits earned for the Academic Orientation program are not included into 240 credits for graduation.  \*\*All students in their 2nd year must take one Second Year Seminar. This seminar substitutes for one required 6-credit course in either Humanities, Social Sciences, Arts or Natural Science.  \*\*\*One 6-credit course in Major requirements could be counted towards General Education requirements. **\*** Credits earned for the Academic Orientation program are not included into 240 credits for graduation.  \*\*All students in their 2nd year must take one Second Year Seminar. This seminar substitutes for one required 6-credit course in either Humanities, Social Sciences, Arts or Natural Science.  \*\*\*One 6-credit course in Major requirements could be counted towards General Education requirements. | | | | | | |

| **Major Requirements** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Required Courses (75 cr)** | | | | | | |
| **Course Name** | **Course abbr.** | **Course ID** | **Credits** | **Semester** | **Prerequisites** | **Comments** |
| Introduction to Programming | COM-122 | 5682 | 6 | 1 | none |  |
| Discrete Mathematics | COM-236 | 5676 | 6 | 1 | none |  |
| Object Oriented Programming | COM-119 | 4357 | 6 | 2 | Introduction to Programming (COM-122) |  |
| Principles of computing systems | COM-123 | 5778 | 6 | 2 | Introduction to Programming (COM-122) |  |
| Data structures | COM-229 | 5964 | 6 | 3 | OOP (COM-119) |  |
| Algorithms | TBA | TBA | 6 | 4 | Data structures |  |
| Operating systems  **or**  Computer networks | COM-341.1  or  COM - 416.1 | 3325  or  3709 | 6 | 5 | Principles of computing systems AND Data structures |  |
| Database | COM-213 | 4773 | 6 | 5 | OOP (COM-119) |  |
| Senior Thesis I | COM-431.1 | 3706 | 6 | 7 | OOP (COM-119) |  |
| Senior Thesis II | COM-433 | 3707 | 6 | 8 | Senior Thesis I, COM-431.1 |  |
| **Internship:** |  |  |  |  |  |  |
| Internship: Educational Tasks  Internship: Research Project | COM-498.1  COM-499.1 | 3842  3841 | 15 | summer |  | Outside of 240 cr |
| **Elective Courses (need to take 36 cr)** | | | | | | |
| **Course Name** | **Course abbr.** | **Course ID** | **Credits** | **Semester** | **Prerequisites** | **Comments** |
| 3D Design and Animation | JMC/TCMA/COM-336 | 4047 | 6 | any | None |  |
| Software project management (eng) | COM-341 | 5093 | 6 | 2-8 | OOP |  |
| Algorithm Analysis | COM - 324.1 | 3261 | 6 | 4-8 | Algorithms |  |
| Applied Autonomous robotics | COM-255 | 4521 | 6 | 3-8 | OOP |  |
| Introduction to Artificial Intelligence | COM-214 | 4633 | 6 | 3-8 | FYS II |  |
| Computer Vision | COM-389 | 4626 | 6 |  | OOP |  |
| Data Science | COM/MATH-295 | 4520 | 6 | 3-8 | OOP |  |
| Database Design | COM – 326.1 | 3499 | 6 | 6-8 | Database |  |
| Digital Integrated Circuit Design | COM-333 | 4143 | 6 | 3-8 | OOP |  |
| Game Development | COM – 299 | 3956 | 6 | 3-8 | OOP |  |
| Information Security | COM-424.1 | 3953 | 6 | 3-8 | OOP |  |
| Information Security II | COM-425.1 | 4827 | 6 | 4-8 | Info.security |  |
| Intro to Web programming | COM – 388.1 | 3040 | 6 | 3-8 | OOP |  |
| Introduction to automated deduction | COM – 270 | 4351 | 6 | 4-8 | Discrete Math II |  |
| iOS application development | COM-256 | 4624 | 6 | 3-8 | OOP |  |
| Machine learning | COM-474 | 4774 | 6 | 3-8 | LinAlg AND Principles of computing systems |  |
| Management of Information Systems for SFW (eng) | COM-302 | 5095 | 6 | 3-8 | OOP |  |
| Mobile and IoT Development | COM-254 | 4389 | 6 | 3-8 | OOP |  |
| Modern Programming Languages | COM-297 | 5679 | 6 | 3-8 | OOP |  |
| Neural Networks and deep learning | COM – 312 | 4519 | 6 | 3-8 | Principles of computing systems |  |
| Parallel programming | COM-451.1 | 3708 | 6 | 6-8 | Operating systems |  |
| Programming Languages | COM – 371.1 | 3327 | 6 | 3-8 | OOP |  |
| System Administration | COM – 463.1 | 3704 | 6 | 6-8 | Comp Networks |  |
| Theory of computation | COM-332.1 | 3703 | 6 | 6-8 | Linear Algebra |  |
| **Electives - 40 cr (at least 18cr outside the major + 22cr can be taken from the major)** | | | | | | |
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|  |  |  |  |  |  |  |
| **Total Number of Credits** |  |  | **255** |  |  |  |

**Recommended order of study for 2025 admits**

| **Academic Orientation Program [2 credits]** | | | | |
| --- | --- | --- | --- | --- |
| **1st semester (30 credits)** | | **2nd semester (30 credits)** | | |
| First Year Seminar I | 4 | First Year Seminar II | 4 | |
| Philosophy I (part of FYS) | 2 | Philosophy II (part of FYS) | 2 | |
| Composition I | 6 | Composition II | 6 | |
| Sport (or Competitive programming) | 0 | Sport (or Competitive programming) | 0 | |
| Discrete Mathematics | 6 | Object-Oriented Programming | 6 | |
| Linear Algebra and Analytic Geometry | 6 | Principles of Computing systems | 6 | |
| Introduction to Programming | 6 | Mathematical Analysis I | 6 | |
| **3rd semester (30 credits)** | | **4th semester (30 credits)** | | |
| Theory of probabilities and Math. Statistics  OR  Natural Science | 6 | Natural Science  OR  Theory of probabilities and Math. Statistics | 6 | |
| Data Structures | 6 | SFW Elective (2) | 6 | |
| SFW elective (1) | 6 | Algorithms | 6 | |
| Second year seminar/ART or HUM or SS etc. | 6 | Kyrgyz language and Literature II | 4 | |
| Kyrgyz language and Literature I | 4 | History of Kyrgyzstan | 4 | |
| Russian Language I | 2 | Geography of Kyrgyzstan | 2 | |
| Sport (or Competitive programming) | 0 | Russian Language II | 2 | |
| **5th semester (30 credits)** | | **6th semester (32 credits)** | | |
| Operating systems  **or**  Computer networks | 6 | SFW Elective course (4) | | 6 |
| Database | 6 | Elective course | | 6 |
| SFW Elective course (3) | 6 | Elective course | | 6 |
| Elective course | 6 | Elective course | | 6 |
| ART or HUM or SS or Elective | 6 | ART or HUM or SS | | 6 |
| Sport (or Competitive programming) | 0 | Manas Studies | | 2 |
| **SUMMER** | | | | |
| Internship | 15 |  | |  |
| **7th semester (30 credits)** | | **8th semester (30 credits)** | | |
| Senior Thesis I | 6 | Senior Thesis II | | 6 |
| SFW Elective course (5) | 6 | SFW Elective course (6) | | 6 |
| Elective course | 6 | Elective course | | 6 |
| ART or HUM or SS | 6 | ART or HUM or SS | | 6 |
| ART or HUM or SS | 6 | ART or HUM or SS | | 6 |

## Graduation requirements:

1. Earn at least 242 credits (+credit hours earned for program internships)
   1. Complete all General Education requirements;
   2. Complete all requirements for at least one major;
   3. Earn no more than 102 credits of introductory (100-level) courses;
   4. Complete at least 18 elective credits outside of a student’s major and General Education program;
   5. Complete the required number of internship credits (the number of credits is determined by each department);
   6. Pass all state graduation examinations;
   7. Successfully complete and defend a senior thesis/project;
   8. Receive no "F" or "N/p" grades in the final semester;

To earn an overall GPA of at least 2.0.