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|---------------------------|---|
| Opiskelija, henkilötunnus | Bhagya Madurangi Collas, 140298-736N |
| OID-tunnus | 1.2.246.562.24.39743268015 |
| Tutkinto-ohjelma, laajuus | Bachelor's Degree Programme in Information and Communications Technology, 240,00 op |
| Suuntautumisvaihtoehto | |
| Suoritetut opinnot | 261,00 op |

| <u>Opinnot</u> | <u>Laajuus (op)</u> | <u>Arvosana</u> | <u>Päivämäärä</u> |
|---|---------------------|-----------------|-------------------|
| STUDENT WELLBEING IN STUDIES AND AT WORK | | | |
| ZZPP0520 Osaajana kehittyminen | 5,00 | | |
| Reporting | 5,00 | H | 7.11.2025 |
| Module 1: Orientation to Studies | 1,00 | H | 25.5.2023 |
| Module 2: JAMK as Study environment | 1,00 | H | 24.5.2023 |
| Module 3: Study- and Work Well Being | 1,00 | H | 24.5.2023 |
| Module 4: Working Life Skills | 1,00 | H | 20.11.2024 |
| Module 5: Career Planning and PLP discussions | 1,00 | H | 17.3.2025 |
| LANGUAGES AND COMMUNICATION STUDIES | | | |
| ZZPC0220 Työelämän englanti | 11,00 | | |
| ZWPC0420 Communication Skills for Working Life | 4,00 | 4 | 31.12.2023 |
| ZWPC0820 Finnish 1 | 3,00 | 3 | 31.12.2023 |
| ZWPC0820 Finnish 1 | 4,00 | 4 | 26.4.2023 |
| FUTURE FACTORY | | | |
| ZZPP0740 JAMK InnoFlash | 15,00 | | |
| ZZ00CK90 Yrittäjyys | 2,00 | H | 8.12.2022 |
| ZZPP0920 Future Factory -projekti | 3,00 | H | 9.12.2025 |
| Projekti | 10,00 | 5 | 28.4.2025 |
| Kestävä kehitys | 8,00 | 5 | 28.4.2025 |
| Kestävä kehitys | 2,00 | H | 9.4.2025 |
| BASIC ENGINEERING MATHEMATICS AND PHYSICS | | | |
| TZLM1300 Mat1 Yhtälöt | 15,00 | | |
| TZLM2300 Mat2 Funktiot | 3,00 | 5 | 19.12.2022 |
| TZLM3300 Mat3 Derivaatta ja integraali | 3,00 | 5 | 7.3.2023 |
| TZLF1300 Fys1 Voima ja liike | 3,00 | 5 | 2.5.2023 |
| TZLF2300 Fys2 Energia | 3,00 | 5 | 1.5.2023 |
| TZLF2300 Fys2 Energia | 3,00 | 5 | 7.12.2023 |
| MATEMATIIKAN JA LUONNONTIEDEIDEN SOVELTAMINEN | | | |
| TIETO- JA VIESTINTÄTEKNIIKASSA | | | |
| TZLF8010 Fys3 - Sähkömagnetismi ja aalto-oppi | 15,00 | | |
| TZLF8020 Fys4 - Laboraatiot | 4,00 | 3 | 23.4.2025 |
| TZLM4300 Mat4 Diskreetti matematiikka | 2,00 | 4 | 15.12.2023 |
| TZLM7020 Sovellettu matematiikka: Kryptologia | 3,00 | 5 | 19.12.2023 |
| TZLM7050 Sovellettu matematiikka: Vektorit ja matriisit | 3,00 | H | 9.12.2024 |
| TZLM7050 Sovellettu matematiikka: Vektorit ja matriisit | 3,00 | H | 18.12.2023 |
| SUPPORT STUDIES | | | |
| TZMV0300 Matematiikkaan valmistavat opinnot | 7,00 | | |
| TZMV1100 Mat1 Tukiopinnot | 3,00 | H | 24.10.2022 |
| TZMV2100 Mat2 Tukiopinnot | 1,00 | H | 9.12.2022 |
| TZMV3100 Mat3 Tukiopinnot | 1,00 | H | 7.3.2023 |
| TZMV3100 Mat3 Tukiopinnot | 1,00 | H | 2.5.2023 |
| TTZW0410 Git -versionhallinta ja Gitlab -projektien hallintaympäristö | 1,00 | H | 23.11.2022 |

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 OID-tunnus 1.2.246.562.24.39743268015

| <u>Opinnot</u> | <u>Laajuus (op)</u> | <u>Arvosana</u> | <u>Päivämäärä</u> |
|--|---------------------|-----------------|-------------------|
| TIC, INFORMATION TECHNOLOGY | 28,00 | | |
| ZZPP0420 ICT-valmiudet | 3,00 | H | 7.11.2022 |
| TTC1010 IT-palvelualustat | 3,00 | 5 | 11.12.2023 |
| TTC1020 Kyberturvallisuus | 4,00 | 2 | 2.5.2025 |
| TTC1030 Tietoverkot | 5,00 | 3 | 3.5.2023 |
| TTC1040 Linuxin käyttö ja hallinta | 5,00 | 5 | 2.12.2022 |
| TTC1050 Tietorakenteet ja algoritmit | 3,00 | 5 | 11.3.2025 |
| TTC1060 Digitaaliteknikka ja laitetekniikka | 5,00 | 2 | 24.4.2023 |
| TIC, SOFTWARE ENGINEERING | 31,00 | | |
| TTC2010 Web-teknikat | 4,00 | 2 | 19.12.2022 |
| TTC2020 Tietokannat | 4,00 h1 | 5 | 28.3.2022 |
| TTC2030 Ohjelmoinnin perusteet | 5,00 | 5 | 12.12.2022 |
| TTC2040 Johdanto IoT -järjestelmiin | 3,00 | 3 | 7.12.2023 |
| TTC2050 Johdatus data-analytiikkaan ja tekoälyyn | 3,00 | 4 | 3.3.2025 |
| TTC2060 Skriptaamisen ja automatisoinnin perusteet | 3,00 | 5 | 7.12.2023 |
| TTC2070 Projektitoiminta ja käytänteet | 4,00 | H | 24.11.2023 |
| TTC2080 Full Stack -ohjelointi | 5,00 | 4 | 13.12.2023 |
| APPLICATION DEVELOPMENT | 30,00 | | |
| TTC8410 Web-visualisointi | 5,00 | 4 | 27.11.2024 |
| TTC8420 Web-käyttöliittymien ohjelointi | 5,00 | 3 | 10.12.2024 |
| TTC8430 Web-palvelinohjelointi sovelluskehysellä | 5,00 | 1 | 1.12.2024 |
| TTC8440 Olio-ohjelointi | 5,00 | 4 | 10.12.2024 |
| TTC8450 Mobiilisovelluskehitys | 5,00 | 1 | 10.12.2024 |
| TTC8460 Android-sovelluskehitys | 5,00 | 3 | 10.12.2024 |
| ADVANCED PROGRAMMING | 5,00 | | |
| TTC8850 Future IoT Technologies | 5,00 | 1 | 20.12.2024 |
| RESEARCH-BASED DEVELOPMENT IN PRACTICE | 20,00 | | |
| ZZPP0620 Kehittämis- ja tutkimustoiminta | 5,00 | 5 | 16.12.2024 |
| ZZ00BL91 Opinnäytetyön suunnitelma, AMK | 3,00 | 4 | 21.8.2025 |
| ZZ00BL97 Opinnäytetyön kirjoittaminen, AMK | 2,00 | H | 8.12.2025 |
| ZZ00BL92 Opinnäytetyön toteutus, AMK | 6,00 | 4 | 1.12.2025 |
| ZZ00BL93 Opinnäytetyön raportointi ja arviointi, AMK | 4,00 | 4 | 11.12.2025 |
| ZZOA0220 Kypsyytnäyte | v1 | H | 11.12.2025 |
| PRACTICAL TRAINING | 42,00 | | |
| TTHA0100 Harjoittelu | 18,00 | H | 8.8.2025 |
| Practical Training 2 | 18,00 | H | 8.8.2025 |
| TTHA0120 Syventävä ammatillinen harjoittelu | 12,00 | H | 13.11.2025 |
| harjoittelu osa 1 | 12,00 h2 | H | 7.3.2025 |
| ELECTIVE STUDIES | 7,00 | | |
| Talent Boost: Integration into Finland | 2,00 | | |
| ZW00BS75 Integration into the Finnish Society | 2,00 | H | 6.1.2023 |
| Team&Client Project Course, Teaching | 5,00 h3 | H | 8.5.2023 |

Opiskelija, henkilötunnus Bhagya Madurangi Collas, 140298-736N
OID-tunnus 1.2.246.562.24.39743268015

| <u>Opinnot</u> | <u>Laajuus (op)</u> | <u>Arvosana</u> | <u>Päivämäärä</u> |
|--|---------------------|-----------------|-------------------|
| DATA-ANALYTIKKA JA TEKOÄLY | 30,00 | | |
| TTC8010 Laskennalliset algoritmit | 4,00 | 5 | 10.12.2025 |
| TTC8030 Datan esikäsittely | 4,00 | 4 | 10.2.2025 |
| TTC8060 Syväoppiminen | 5,00 | 2 | 13.3.2025 |
| TTC8050 Koneoppiminen | 4,00 | 3 | 11.2.2025 |
| TTC8040 Datan analysointi ja visualisointi | 4,00 | 4 | 13.11.2025 |
| TTC8020 Data analytiikan ja koneoppimisen käytänteet | 4,00 | 4 | 1.12.2025 |
| TTC8070 AI / DA -Projekti | 5,00 | 5 | 18.12.2025 |

Oppinnäytöö: Mathematical Approaches to Software Performance, Mathematical Models for System Evaluation and Enhancement

Hyväksilukeminen

h1 = Tietokannat, 28.3.2022, Jyväskylän ammattikorkeakoulu

h2 = harjoittelu osa 1, 7.3.2025, Muodollisen koulutuksen ulkopuolella

h3 = Team&Client Project Course, Teaching, 8.5.2023, Jyväskylän yliopisto

Vapautukset

v1 = Erittyinen svy

SÄÄDÖKSET

Opintojen mitoituksen peruste on opintopiste (op). Yhden lukuvuoden opintojen suorittamiseen keskimäärin vaadittava 1 600 tunnin työpanos vastaa 60 opintopistettä. (A 1129/2014 § 3.).

| | |
|---|---|
| Student, National Identification Number | Bhagya Madurangi Collas, 140298-736N |
| OID | 1.2.246.562.24.39743268015 |
| Degree Programme, credits | Bachelor's Degree Programme in Information and Communications Technology, 240.00 cr |
| Specialisation | |
| Completed | 261.00 cr |

| <u>Studies</u> | <u>Credits</u> | <u>Grade</u> | <u>Date</u> | |
|---|----------------|--------------|-------------|------------|
| STUDENT WELLBEING IN STUDIES AND AT WORK | | | | |
| ZZPP0520 Development as an Expert | 5.00 | P | 7.11.2025 | |
| Reporting | | P | 25.5.2023 | |
| Module 1: Orientation to Studies | 1.00 | P | 24.5.2023 | |
| Module 2: JAMK as Study environment | 1.00 | P | 24.5.2023 | |
| Module 3: Study- and Work Well Being | 1.00 | P | 24.5.2023 | |
| Modules 4: Working Life Skills | 1.00 | P | 20.11.2024 | |
| Module 5: Career Planning and PLP discussions | 1.00 | P | 17.3.2025 | |
| LANGUAGES AND COMMUNICATION STUDIES | | | | |
| ZZPC0220 English for Working Life | 11.00 | 4 | 31.12.2023 | |
| ZWPC0420 Communication Skills for Working Life | | 3 | 31.12.2023 | |
| ZWPC0820 Finnish 1 | | 4 | 26.4.2023 | |
| FUTURE FACTORY | | | | |
| ZZPP0740 JAMK InnoFlash | 15.00 | P | 8.12.2022 | |
| ZZ00CK90 Entrepreneurship | | P | 9.12.2025 | |
| ZZPP0920 Future Factory Project | | 5 | 28.4.2025 | |
| Project | | 5 | 28.4.2025 | |
| Sustainable Development | | P | 9.4.2025 | |
| BASIC ENGINEERING MATHEMATICS AND PHYSICS | | | | |
| TZLM1300 Math1 Equations | 15.00 | 3 | 19.12.2022 | |
| TZLM2300 Math2 Functions | | 5 | 7.3.2023 | |
| TZLM3300 Math3 Derivative and Integral | | 5 | 2.5.2023 | |
| TZLF1300 Phys1 Force and Motion | | 5 | 1.5.2023 | |
| TZLF2300 Phys2 Energy | | 5 | 7.12.2023 | |
| MATHEMATICS AND APPLYING OF NATURAL SCIENCES IN INFORMATION AND COMMUNICATION TECHNOLOGY | | | | |
| TZLF8010 Physics 3 - Electromagnetism and Waves | 15.00 | 4.00 | 3 | 23.4.2025 |
| TZLF8020 Physics 4 - Laboratory work | | 2.00 | 4 | 15.12.2023 |
| TZLM4300 Math4 Discrete Mathematics | | 3.00 | 5 | 19.12.2023 |
| TZLM7020 Applied mathematics: Cryptology | | 3.00 | P | 9.12.2024 |
| TZLM7050 Applied mathematics: Vectors and Matrices | | 3.00 | P | 18.12.2023 |
| SUPPORT STUDIES | | | | |
| TZMV0300 Preparatory Mathematics | 7.00 | 3.00 | P | 24.10.2022 |
| TZMV1100 Math1 Support | | 1.00 | P | 9.12.2022 |
| TZMV2100 Math2 Support | | 1.00 | P | 7.3.2023 |
| TZMV3100 Math3 Support | | 1.00 | P | 2.5.2023 |
| TTZW0410 Git -version control and Gitlab -project management environment | | 1.00 | P | 23.11.2022 |

Student, National Identification Number Bhagya Madurangi Collas, 140298-736N
 OID 1.2.246.562.24.39743268015

| <u>Studies</u> | <u>Credits</u> | <u>Grade</u> | <u>Date</u> |
|--|----------------|--------------|-------------|
| TIC, INFORMATION TECHNOLOGY | | | |
| ZZPP0420 ICT Skills | 3.00 | P | 7.11.2022 |
| TTC1010 IT Service Platforms | 3.00 | 5 | 11.12.2023 |
| TTC1020 Cyber Security | 4.00 | 2 | 2.5.2025 |
| TTC1030 Data Networks | 5.00 | 3 | 3.5.2023 |
| TTC1040 Linux Basics | 5.00 | 5 | 2.12.2022 |
| TTC1050 Data Structures and Algorithms | 3.00 | 5 | 11.3.2025 |
| TTC1060 Digital Technology and Hardware | 5.00 | 2 | 24.4.2023 |
| TIC, SOFTWARE ENGINEERING | | | |
| | 31.00 | | |
| TTC2010 Web Technologies | 4.00 | 2 | 19.12.2022 |
| TTC2020 Databases | 4.00 | h1 | 5 |
| TTC2030 Basics of Programming | 5.00 | 5 | 12.12.2022 |
| TTC2040 Introduction to IoT-systems | 3.00 | 3 | 7.12.2023 |
| TTC2050 Introduction to Data Analytics and Artificial Intelligence | 3.00 | 4 | 3.3.2025 |
| TTC2060 Basics of Scripting and Automatization | 3.00 | 5 | 7.12.2023 |
| TTC2070 Project Management and Practices | 4.00 | P | 24.11.2023 |
| TTC2080 Full Stack Programming | 5.00 | 4 | 13.12.2023 |
| APPLICATION DEVELOPMENT | | | |
| | 30.00 | | |
| TTC8410 Web Visualization | 5.00 | 4 | 27.11.2024 |
| TTC8420 Web User Interface Programming | 5.00 | 3 | 10.12.2024 |
| TTC8430 Web Server Programming | 5.00 | 1 | 1.12.2024 |
| TTC8440 Object-oriented Programming | 5.00 | 4 | 10.12.2024 |
| TTC8450 Mobile Application Development | 5.00 | 1 | 10.12.2024 |
| TTC8460 Android Application Development | 5.00 | 3 | 10.12.2024 |
| ADVANCED PROGRAMMING | | | |
| | 5.00 | | |
| TTC8850 Future IoT Technologies | 5.00 | 1 | 20.12.2024 |
| RESEARCH-BASED DEVELOPMENT IN PRACTICE | | | |
| | 20.00 | | |
| ZZPP0620 Research and Development | 5.00 | 5 | 16.12.2024 |
| ZZ00BL91 Bachelor's Thesis, Planning | 3.00 | 4 | 21.8.2025 |
| ZZ00BL97 Bachelor's Thesis, Thesis Writing | 2.00 | P | 8.12.2025 |
| ZZ00BL92 Bachelor's Thesis, Implementation | 6.00 | 4 | 1.12.2025 |
| ZZ00BL93 Bachelor's Thesis, Reporting and Assessment | 4.00 | 4 | 11.12.2025 |
| ZZOA0220 Maturity Test | v1 | P | 11.12.2025 |
| PRACTICAL TRAINING | | | |
| | 42.00 | | |
| TTHA0100 Practical Training | 18.00 | P | 8.8.2025 |
| Practical Training 2 | 18.00 | P | 8.8.2025 |
| TTHA0120 Advancement Professional Training | 12.00 | P | 13.11.2025 |
| Practical Training Part 1 | 12.00 | h2 | 7.3.2025 |
| ELECTIVE STUDIES | | | |
| | 7.00 | | |
| Talent Boost: Integration into Finland | | | |
| | 2.00 | | |
| ZW00BS75 Integration into the Finnish Society | 2.00 | P | 6.1.2023 |
| Team&Client Project Course, Teaching | 5.00 | h3 | 8.5.2023 |

Student, National Identification Number Bhagya Madurangi Collas, 140298-736N
OID 1.2.246.562.24.39743268015

| <u>Studies</u> | <u>Credits</u> | <u>Grade</u> | <u>Date</u> |
|---|----------------|--------------|-------------|
| DATA-ANALYTICS AND ARTIFICIAL INTELLIGENCE | 30.00 | | |
| TTC8010 Computational algorithms | 4.00 | 5 | 10.12.2025 |
| TTC8030 Data Preprocessing | 4.00 | 4 | 10.2.2025 |
| TTC8060 Deep Learning | 5.00 | 2 | 13.3.2025 |
| TTC8050 Machine Learning | 4.00 | 3 | 11.2.2025 |
| TTC8040 Data Analysis and Visualization | 4.00 | 4 | 13.11.2025 |
| TTC8020 Data-Analysis and Machine Learning Basics | 4.00 | 4 | 1.12.2025 |
| TTC8070 AI / DA -Project | 5.00 | 5 | 18.12.2025 |

Thesis: Mathematical Approaches to Software Performance, Mathematical Models for System Evaluation and Enhancement

Recognition of Studies

h1 = Databases, 28.3.2022, JAMK University of Applied Sciences

h2 = Practical Training Part 1, 7.3.2025, Outside of Formal Education

h3 = Team&Client Project Course, Teaching, 8.5.2023, University of Jyväskylä

Exemptions

v1 = Special reason

REGULATIONS

The studies are measured in credits (cr). A student's average study effort of 1,600 hours required for the completion of studies during one academic year corresponds to 60 credits. (Decree 1129/2014 § 3.) The Finnish credits are equivalent to the ECTS credits..

The Finnish grades are converted to ECTS grades as follows (ECTS grades in brackets): 5 (A), 4 (B), 3 (C), 2 (D), 1 (E), 0/fail (F or FX).