



| Metropolia UAS<br>Information and Communication Technology<br>MAJOR: HEALTH TECHNOLOGY |  | extent of credits | Mathematics and natural sciences skills | Hardware skills | Network engineering skills | Software skills | ICT business skills | ICT application skills | Communication skills | Learning to Learn | Ethics | Operating in a workplace | Internationality and multiculturalism | Sustainable Development | Proactive Development |
|--|--|-------------------|---|-----------------|----------------------------|-----------------|---------------------|------------------------|----------------------|-------------------|--------|--------------------------|---------------------------------------|-------------------------|-----------------------|
| 2nd year of study  | Wireless Applications  | 5                 | X                                       | X               | X                          |                 |                     | X                      | X                    | X                 | X      | X                        | X                                     |                         |                       |
|  | Applied Anatomy and Physiology   | 5                 | X                                       | X               |                            |                 |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
|  | Biomechanics and Motion Measurement  | 5                 | X                                       | X               |                            |                 |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
|  | Physiological Measurements and Sensors   | 5                 | X                                       | X               |                            | X               |                     | X                      | X                    | X                 |        | X                        |                                       |                         |                       |
|  | Project: Measurement Data Processing and Visualization Requirement Specification | 10                | X                                       | X               | X                          | X               |                     | X                      | X                    | X                 |        | X                        |                                       |                         | X                     |
|  | Web Development  | 10                | X                                       |                 | X                          | X               | X                   | X                      | X                    | X                 | X      | X                        | X                                     |                         |                       |
|  | Usability and User-driven Development  | 5                 | X                                       |                 |                            |                 |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
|  | Project: Health Application Development  | 10                | X                                       |                 | X                          | X               | X                   | X                      | X                    | X                 |        | X                        |                                       |                         | X                     |
|  | 3rd year of study  | Risk Management   | 5                                       | X               | X                          |                 |                     |                        | X                    | X                 | X      | X                        | X                                     | X                       |                       |
| Patient Monitoring Equipment   |  | 5                 | X                                       | X               |                            | X               |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
| Medical Imaging  |  | 5                 | X                                       | X               |                            |                 |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
| Safety of Use and Usability Engineering  |  | 5                 | X                                       | X               |                            |                 | X                   | X                      | X                    | X                 | X      | X                        |                                       |                         | X                     |
| Applications of Neural Networks in Medicine  |  | 5                 | X                                       |                 |                            | X               |                     | X                      | X                    | X                 | X      | X                        |                                       |                         | X                     |
| Medical Device Regulatory Path   |  | 5                 | X                                       | X               |                            |                 | X                   | X                      | X                    | X                 |        | X                        | X                                     |                         | X                     |
| Probability Calculus and Statistics  |  | 5                 | X                                       |                 |                            |                 |                     |                        | X                    | X                 | X      | X                        |                                       |                         |                       |

| Metropolia UAS<br>Information and Communication Technology<br>MAJOR: SOFTWARE ENGINEERING |   | extent of credits | Mathematics and natural sciences skills | Hardware skills | Network engineering skills | Software skills | ICT business skills | ICT application skills | Communication skills | Learning to Learn | Ethics | Operating in a workplace | Internationality and multiculturalism | Sustainable Development | Proactive Development |
|---|---|-------------------|---|-----------------|----------------------------|-----------------|---------------------|------------------------|----------------------|-------------------|--------|--------------------------|---------------------------------------|-------------------------|-----------------------|
| 2nd year of study   | Object-oriented Programming                       | 10                |   |                 |                            | X               |                     |                        |                      | X                 |        |                          |                                       | X                       |                       |
|   | Programming Project                               | 5                 |   |                 |                            | X               |                     | X                      | X                    | X                 |        | X                        |                                       | X                       | X                     |
|   | Web Development                                   | 10                |   |                 | X                          | X               |                     |                        |                      | X                 |        |                          |                                       | X                       |                       |
|   | Web Project                                       | 5                 |   |                 | X                          | X               |                     | X                      | X                    | X                 | X      | X                        |                                       | X                       |                       |
|   | Description and Modelling Techniques              | 5                 |   |                 |                            | X               |                     |                        |                      | X                 |        | X                        |                                       |                         |                       |
|   | User-centered Design                              | 5                 |   |                 |                            | X               |                     |                        |                      | X                 | X      | X                        | X                                     | X                       | X                     |
|   | Software Engineering Project 1                    | 5                 |   |                 | X                          | X               |                     | X                      | X                    | X                 |        | X                        |                                       | X                       | X                     |
|   | Data Structures and Algorithms                    | 5                 | X                                       |                 |                            | X               |                     |                        |                      | X                 |        |                          |                                       | X                       |                       |
|   | Design Patterns                                   | 5                 |   |                 |                            | X               |                     |                        |                      | X                 |        |                          |                                       | X                       |                       |
|   | Software Engineering Project 2                    | 5                 |   |                 | X                          | X               |                     | X                      | X                    | X                 | X      | X                        | X                                     | X                       | X                     |
| 3rd year of study   | Probability Calculus and Statistics               | 5                 | X                                       |                 |                            | X               |                     |                        |                      | X                 | X      |                          |                                       | X                       |                       |
|   | Database Solutions                                | 5                 |   |                 |                            | X               |                     |                        |                      | X                 |        |                          |                                       | X                       | X                     |
|   | Data Handling and Machine Learning                | 5                 | X                                       |                 |                            | X               |                     | X                      |                      | X                 | X      |                          |                                       | X                       | X                     |
|   | Neural Networks                                   | 5                 | X                                       |                 |                            | X               |                     | X                      |                      | X                 |        |                          |                                       | X                       |                       |
|   | Neural Network Project                            | 5                 | X                                       |                 |                            | X               |                     | X                      | X                    | X                 |        | X                        |                                       | X                       | X                     |
|   | Design Patterns in Mobile Application Development | 5                 |   |                 |                            | X               |                     | X                      |                      | X                 |        |                          |                                       | X                       |                       |
|   | Sensors in Mobile Application Development         | 5                 |   | X               |                            | X               |                     | X                      |                      | X                 |        |                          |                                       | X                       |                       |
|   | Advanced Mobile Application Development           | 5                 |   | X               |                            | X               |                     | X                      |                      | X                 |        |                          |                                       | X                       |                       |
|   | Mobile Application Development Project            | 5                 |   | X               | X                          | X               |                     | X                      | X                    | X                 |        | X                        | X                                     | X                       | X                     |
|   | Ethical Hacking                                   | 5                 |   |                 |                            | X               |                     | X                      |                      | X                 | X      |                          |                                       | X                       |                       |
|   | Special Professional Course                       | 5                 |   |                 |                            | X               |                     | X                      |                      | X                 |        |                          |                                       | X                       |                       |

| Metropolia UAS<br>Information and Communication Technology<br>MAJOR: SMART IOT SYSTEMS |  | extent of credits | Mathematics and natural sciences skills | Hardware skills | Network engineering skills | Software skills | ICT business skills | ICT application skills | Communication skills | Learning to Learn | Ethics | Operating in a workplace | Internationality and multiculturalism | Sustainable Development | Proactive Development |
|--|--|-------------------|---|-----------------|----------------------------|-----------------|---------------------|------------------------|----------------------|-------------------|--------|--------------------------|---------------------------------------|-------------------------|-----------------------|
| 2. opintovuosi<br>Osaamistavoitteet  | C Programming in IoT Devices                     | 5                 |   | X               |                            | X               |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Switched Networks and Routing                    | 5                 |   |                 | X                          |                 |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Engineering Mathematics                          | 5                 | X                                       |                 |                            |                 |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Embedded Systems Programming                     | 5                 |   | X               | X                          | X               |                     | X                      | X                    | X                 |        |                          |                                       |                         |                       |
|  | Linux Servers and Databases                      | 5                 |   |                 | X                          | X               |                     | X                      |                      | X                 |        |                          |                                       |                         |                       |
|  | Probability and Statistics                       | 5                 | X                                       |                 |                            | X               |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Object-Oriented Programming in IoT Devices       | 5                 |   | X               |                            | X               |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Modern Computer Architecture                     | 5                 |   | X               |                            | X               |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Mathematics and Physics for IoT                  | 5                 | X                                       |                 |                            |                 |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | IoT Connecting Things                            | 5                 |   | X               |                            | X               |                     | X                      | X                    | X                 |        |                          |                                       |                         |                       |
|  | IoT Devices and Wireless Communication           | 5                 |   | X               | X                          | X               |                     | X                      | X                    | X                 |        |                          |                                       | X                       |                       |
|  | Sensor Physics                                   | 5                 | X                                       |                 |                            |                 |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Windows Servers                                  | 5                 |   | X               | X                          |                 |                     | X                      |                      | X                 |        |                          |                                       |                         |                       |
|  | Secure Enterprise Networks                       | 5                 |   |                 | X                          |                 |                     | X                      |                      | X                 |        |                          |                                       |                         | X                     |
|  | IoT Security                                     | 5                 |   |                 | X                          |                 |                     | X                      |                      | X                 | X      | X                        |                                       |                         | X                     |
| Cloud Computing Fundamentals and Machine Learning                                      | 5  |                   |   | X               | X                          |                 | X                   |                        | X                    |                   |        |                          |                                       | X                       |                       |
| Enterprise Virtualization Configuration and Management                                 | 5  |                   |   | X               |                            |                 | X                   | X                      | X                    |                   | X      |                          |                                       | X                       |                       |
| Cybersecurity Operations   | 5  |                   |   | X               |                            |                 | X                   |                        | X                    | X                 | X      |                          |                                       | X                       |                       |
| 3. opintovuosi<br>Osaamistavoitteet  | IoT Security                                     | 5                 |   | X               | X                          |                 |                     | X                      |                      | X                 | X      | X                        |                                       |                         | X                     |
|  | Managing Linux Systems with Embedded Perspective | 5                 |   | X               | X                          | X               |                     | X                      |                      | X                 |        |                          |                                       |                         |                       |
|  | ARM-Processors and Embedded Operating Systems    | 5                 |   | X               |                            | X               |                     |                        |                      | X                 |        |                          |                                       |                         |                       |
|  | Embedded Linux Basics (Yocto Project)            | 5                 |   | X               | X                          | X               |                     | X                      | X                    | X                 |        | X                        |                                       |                         |                       |
|  | Software Test Automation for Embedded Systems    | 5                 |   | X               |                            | X               |                     | X                      |                      | X                 |        |                          |                                       |                         |                       |
|  | Amazon Web Services                              | 5                 |   |                 | X                          | X               |                     | X                      |                      | X                 |        | X                        |                                       |                         | X                     |
|  | Microservices and Container Orchestration        | 5                 |   |                 | X                          | X               |                     | X                      |                      | X                 |        |                          |                                       |                         | X                     |
|  | Ethical Hacking                                  | 5                 |   |                 |                            |                 |                     | X                      | X                    | X                 | X      | X                        |                                       |                         |                       |
|  | Introduction to Big Data Analytics               | 5                 |   |                 | X                          | X               |                     | X                      |                      | X                 |        |                          |                                       |                         |                       |
|  | Practical Cybersecurity                          | 5                 |   |                 | X                          |                 |                     | X                      |                      | X                 |        | X                        |                                       |                         | X                     |
| IoT Project  | 10   | X                 |   | X               | X                          |                 |                     | X                      | X                    | X                 | X      |                          | X                                     | X                       |                       |