**PLAN OF STUDIES**

###### **FACULTY**: GEOENGINEERING, MINING AND GEOLOGY

**MAIN FIELD OF STUDY:** GEODESY AND CARTOGRAPHY (GiK)

**EDUCATION LEVEL:** second-level studies

**FORM OF STUDIES**: full-time studies

**PROFILE:** general academic

**SPECIALIZATION**: GEOMATICS (GEO)

**LANGUAGE OF STUDY:** English

**Zał. nr 4 do ZW 16/2020 Attachment no. 2 to Program of Studies**

In effect since …………………...........................

\*delete as applicable

#### Plan of studies structure (optionally)

###### in ECTS point layout

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **sem/hours** | **1** | **points** | **2** | **points** | **3** | **points** |
| 1 | Physics - the structure of matter 20000Z | 2 | Selected Topics in Geospatial Modelling 10200Z | 3 | Geoinformation Project Management 10100Z | 2 |
| 2 |
| 3 | Foreign Language 03000E | 2 | Selected Topics in Information Technologies 20200E | 3 |
| 4 | Financial Analysis 10100Z | 2 |
| 5 |
| 6 | Advanced Numerical Calculation Methods 10200E | 4 | Physical Geodesy 10100Z | 2 | Distributed Spatial Databases 10200E | 3 |
| 7 |
| 8 | Digital Cartographic Models 10200E | 3 |
| 9 | Advanced Geospatial Analysis 10200Z | 5 | Management of Company Development 10001Z | 2 |
| 10 |
| 11 | Graduate Seminar 00002Z | 2 |
| 12 | Geostatistics 10300E | 5 | GIS Programming II 10200Z | 4 |
| 13 | Elective course 20000Z | 3 |
| 14 |
| 15 | Remote Sensing and Processing of Digital Images 10200E | 5 | Master thesis | 15 |
| 16 | Special Measurements 10200Z | 4 |
| 17 |
| 18 | Selected Topics in Displacement Monitoring 00300Z | 3 |
| 19 | Selected Topics in GNSS 10110E | 4 |
| 20 | Foreign Language 01000Z | 1 |
| 21 | HMC 10000Z | 2 |
| 22 | GIS Programming I 10200Z | 4 | Elective course 20000Z | 3 |
| 23 |
| 24 | Graduate Seminar 00001Z | 1 |
| 25 |  |  | Hydrology II 10000Z | 1 |  |  |
| **sum** |  | **30** |  | **30** |  | **30** |

1. **Set of obligatory and optional courses and groups of courses in semestral arrangement Semester 1**

**Obligatory courses / groups of courses Number of ECTS points 26**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | GGG117 329 | Advanced Numerical Calculation Methods | 1 |  |  | 2 |  | K2GiK\_ W04,  K2GiK\_ U03 | 45 | 120 | 4 | 2 | 1.5 | T | E(w)  Z(p) |  | 2 | P(3) | Ob |
| 2 | GGG117 328 | Advanced Geospatial Analysis | 1 |  | 2 |  |  | K2GiK\_ W07,  K2GiK\_ U08 | 45 | 150 | 5 | 5 | 1.5 | T | Z(w)  Z(l) |  | 5 | P(3) | Ob |
| 3 | GGG117 327 | Geostatistics | 1 |  | 3 |  |  | K2GiK\_ W04,  K2GiK\_ U01 | 60 | 150 | 5 | 5 | 2 | T | E(w)  Z(l) |  | 5 | P(3) | Ob |
| 4 | GKG117 320 | Special Measurements | 1 |  |  | 2 |  | K2GiK\_ W02,  K2GiK\_ U06 | 45 | 120 | 4 | 2 | 1.5 | T | Z(w)  Z(p) |  | 2 | P(2) | Ob |
| 5 | GKG117 340 | Selected Topics in GNSS | 1 |  | 2 |  |  | K2GiK\_ W05,  K2GiK\_ U04 | 45 | 120 | 4 | 2 | 1.5 | T | E(w)  Z(l) |  | 2 | P(2) | Ob |
| 6 | ING1173 22 | GIS Programming I | 1 |  | 2 |  |  | K2GiK\_ W09,  K2GiK\_ U07 | 45 | 120 | 4 | 4 | 1.5 | T | Z(w)  Z(l) |  | 4 | P(2) | Ob |
|  | | Total | 6 |  | 9 | 4 |  |  | 285 | 780 | 26 | 20 | 9.5 |  |  |  | 20 | 15 |  |

1BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

2Traditional – enter T, remote – enter Z

3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

4University-wide course /group of courses – enter O

5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

7KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

#### Optional courses / groups of courses (minimum 75 hours in semester, 4 ECTS points)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | FZP0010  13W | Physics - the structure of matter | 2 |  |  |  |  | K2GiK\_  W01 | 30 | 60 | 2 | - | 1 | T | Z(w) | O | - | - | KO |
| 2 | JZL1007  10BK | Foreign Language |  |  | 3 |  |  | K2GiK\_  U11 | 45 | 60 | 2 | - | 1.5 | T | Z(l) | O | - | P(2) | KO |
|  | | Total | 2 |  | 3 |  |  |  | 75 | 120 | 4 | - | 2.5 |  |  |  | - | 2 |  |

**Altogether in semester**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total number of hours | | | | | Total number of  ZZU  hours | Total number of CNPS hours | Total number of ECTS points | Total number of ECTS points for DN classes5 | Number of ECTS points for BU classes1 |
| lec | cl | lab | pr | sem |  |  |  |  |  |
| 8 | 0 | 12 | 4 | 0 | 360 | 900 | 30 | 20 | 12 |

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2Traditional – enter T, remote – enter Z

3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

4University-wide course /group of courses – enter O

5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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**Semester 2**

#### Obligatory courses / groups of courses Number of ECTS points 23

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | GKG117  331 | Selected Topics in Geospatial Modelling | 1 |  | 2 |  |  | K2GiK\_  W08 | 45 | 90 | 3 | 2 | 1.5 | T | Z(w)  Z(l) |  | 2 | P(2) | S |
| 2 | ZMG117 310 | Financial Analysis | 1 |  | 1 |  |  | K2GiK\_ W10,  K2GiK\_ U10 | 30 | 60 | 2 | 1 | 1 | T | Z(w)  Z(l) |  | 1 | P(1) | K |
| 3 | GKG116 277 | Physical Geodesy | 1 |  | 1 |  |  | K2GiK\_ W03,  K2GiK\_ U03 | 30 | 60 | 2 | 1 | 1 | T | Z(w)  Z(l) |  | 1 | P(1) | K |
| 4 | GKG117 333 | Digital Cartographic Models | 1 |  | 2 |  |  | K2GiK\_ W06,  K2GiK\_ U09 | 45 | 90 | 3 | 1 | 1.5 | T | E(w)  Z(l) |  | 1 | P(2) | S |
| 5 | ING117 324 | GIS Programming II | 1 |  | 2 |  |  | K2GiK\_ W07,  K2GiK\_ U08 | 45 | 120 | 4 | 4 | 1.5 | T | E(w)  Z(l) |  | 4 | P(3) | S |
| 6 | GKG117 332 | Remote Sensing and Processing of Digital Images | 1 |  | 2 |  |  | K2GiK\_ W05,  K2GiK\_ U09 | 45 | 150 | 5 | 5 | 1.5 | T | E(w)  Z(p) |  | 5 | P(3) | S |
| 7 | GKG117 334 | Selected Topics in Displacement Monitoring |  |  | 3 |  |  | K2GiK\_ W06,  K2GiK\_ U05 | 45 | 90 | 3 | 3 | 1.5 | T | Z(l) |  | 3 | P(3) | S |
| 8 | GKG116  294 | Hydrology II | 1 |  |  |  |  | K2GiK\_  W01 | 15 | 30 | 1 | 1 | 0.5 | T | Z(w) |  | 1 | - | K |
|  | | Total | 7 | 0 | 13 | 0 | 0 |  | 300 | 690 | 23 | 18 | 10 |  |  |  | 18 | 15 |  |

1BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

2Traditional – enter T, remote – enter Z

3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

4University-wide course /group of courses – enter O

5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

7KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

#### Optional courses / groups of courses (minimum 75 hours in semester, 7 ECTS points)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | JZL1007  09BK | Foreign Language |  |  | 1 |  |  | K2GiK\_  U11 | 15 | 30 | 1 | - | 0.5 | T | Z | O | - | P(1) | KO |
| 2 | ZMZ000  165W | Humanistic-managerial course | 1 |  |  |  |  | K2GiK\_  U10 | 15 | 60 | 2 | - | 0.5 | T | Z | O | - |  | KO |
| 3 | GKG116  321BK | Elective course | 2 |  |  |  |  |  | 30 | 90 | 3 | 3. | 1 | Z | Z |  | 3 |  | KO |
| 4 | GKG116  295S | Graduate Seminar |  |  |  |  | 1 | K2GiK\_  U11 | 15 | 30 | 1 | - | 0.5 | T | Z |  | - | P(1) | S |
|  | | Total | 3 | 0 | 1 | 0 | 1 |  | 75 | 210 | 7 | 3 | 2.5 |  |  |  | 3 | 2 |  |

**Altogether in semester**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total number of hours | | | | | Total number of  ZZU  hours | Total number of CNPS hours | Total number of ECTS points | Total number of ECTS points for DN classes5 | Number of ECTS points for BU classes1 |
| lec | cl | lab | pr | sem |  |  |  |  |  |
| 10 | 0 | 14 | 0 | 1 | 375 | 900 | 30 | 21 | 12.5 |

1BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

2Traditional – enter T, remote – enter Z

3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

4University-wide course /group of courses – enter O

5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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### Semester 3

#### Obligatory courses / groups of courses Number of ECTS points 10

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | GGG117 331 | Geoinformation Projects Management | 1 |  | 1 |  |  | K2GiK\_ W10,  K2GiK\_ U02 | 30 | 60 | 2 | 2 | 1 | T | Z(w)  Z(l) |  | 2 | P(1) | S |
| 2 | ING117 323 | Selected Topics in Information Technologies | 2 |  | 2 |  |  | K2GiK\_ W07,  K2GiK\_ U09 | 60 | 90 | 3 | 3 | 2 | T | Z(w)  Z(l) |  | 3 | P(2) | S |
| 3 | ING117 577 | Distributed Spatial Databases | 1 |  | 2 |  |  | K2GiK\_ W07,  K2GiK\_ U07 | 45 | 90 | 3 | 2 | 1.5 | T | E(w)  Z(l) |  | 2 | P(2) | S |
| 4 | GKG117 546 | Management of Company Development | 1 |  |  |  | 1 | K2GiK\_ W10,  K2GiK\_ W11 | 30 | 60 | 2 | 1 | 1 | T | Z(w)  Z(s) |  | 1 | P(1) | S |
|  | | Total | 5 | 0 | 5 | 0 | 1 |  | 165 | 300 | 10 | 8 | 5.5 |  |  |  | 8 | 6 |  |

1BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

2Traditional – enter T, remote – enter Z

3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

4University-wide course /group of courses – enter O

5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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#### Optional courses / groups of courses (minimum 90 hours in semester, 20 ECTS points)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Course/  group of courses code | Name of course/group of courses (denote group of courses with symbol **GK**) | Weekly number of hours | | | | | Learning effect symbol | Number of hours | | Number of ECTS points | | | Form2 of course/gr oup of courses | Way3 of crediting | Course/group of courses | | | |
| lec | cl | lab | pr | sem | ZZU | CNPS | Total | DN5  classes | BU1  classes | University  -wide4 | Concerning scientific activities5 | Practical6 | Type7 |
| 1 | GKG116  321BK | Elective course | 2 |  |  |  |  |  | 30 | 90 | 3 | 3 | 1 | T | Z |  | 3 | - |  |
| 2 | GKG116  296S | Graduate Seminar |  |  |  |  | 2 | K2GiK\_  U11 | 30 | 60 | 2 | - | 1 | T | Z |  | - | P(2) |  |
| 3 | GKG116  297D | Master thesis |  |  |  | 2 |  | K2GiK\_  U01 | 30 | 450 | 15 | 15 | 7.5 | Z | Z |  | 15 | P(15) |  |
|  | | Total | 2 | 0 | 0 | 2 | 2 |  | 90 | 600 | 20 | 18 | 9.5 |  |  |  | 18 | 17 |  |

**Altogether in semester**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total number of hours | | | | | Total number of  ZZU  hours | Total number of CNPS hours | Total number of ECTS points | Total number of ECTS points for DN classes5 | Number of ECTS points for BU classes1 |
| lec | cl | lab | pr | sem |  |  |  |  |  |
| 7 | 0 | 5 | 2 | 3 | 255 | 900 | 30 | 26 | 15 |

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3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

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5DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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#### Set of examinations in semestral arrangement

|  |  |  |
| --- | --- | --- |
| Course / group of courses code | Names of courses / groups of courses ending with examination | Semester |
| GGG117329 | 1. Advanced Numerical Calculation Methods | 1 |
| GGG117327 | 2. Geostatistics |  |
| GKG117340 | 3. Selected Topics in GNSS |  |
| JZL100710BK | 4. Foreign Language |  |
| GKG117333 GKG117332 | 1. Digital Cartographic Models 2. Remote Sensing and Processing of Digital Images | 2 |
| ING117577 | 1. Distributed Spatial Databases | 3 |

1. **Numbers of allowable deficit of ECTS points after particular semesters**

|  |  |
| --- | --- |
| Semester | Allowable deficit of ECTS points after semester |
| 1 | 5 |
| 2 | 3 |
| 3 | 0 |

1BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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3Exam – enter E, crediting – enter Z. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem)

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6Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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