## Doctoral study programme P3106 – Textile Engineering

### Branch: Textile Technics and Material Engineering

**DSP – Basics of Natural Science compulsory optional subjects (B)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course title** | **Abbrev.** | **Scope** | **Conclusion** | **Grade** | **Sem.** |
| Mathematical Statistics and Data Analysis | KAP/D02 | 2+0 | exam | **1** | **WS** |
| Numerical Methods | KAP/D40 | 2+0 | exam | **1** | **WS** |
| Differential Equations | KAP/D41 | 2+0 | exam | **1** | **SS** |

Student selects one subject from the menu.

**DSP – Basic of Applied Subjects compulsory optional subjects (B)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course title** | **Abbrev.** | **Scope** | **Conclusion** | **Grade** | **Sem.** |
| Macromolecular Chemistry | [KNT/D18](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **WS** |
| Mechanics of Fibrous Assemblies | [DFT/D43](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **WS** |
| Optics of Solids | [KMI/D05](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **WS** |
| Structural Mechanics of Fibrous Ass. | [KTT/D51](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **WS** |
| Physical-chemistry Modeling | DFT/D42 | 2+0 | exam | **1** | **SS** |
| Heat and Mass Transfer in Porous Media | [KHT/D17](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **SS** |
| Textile Machines Dynamics | [DFT/D44](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwHMQ_Uv-0QsdjrRuw2CJr64AXwiJByRSyMLD99MPEV-fd4-XufqhEiy_1dGrr8dRf6m-UozKoaJpFZLfBkCpOAJPUeP7mDYDhJS-CikcsXtEtQESxD1j6Cgu2B0jIk_YnymFVqe5lEHbMt45PunOZldpYQQ1IVzgZ6t1h_2HWjLfHofGWTnlb_e_zlsMDMUAy7s8NKlBJH7JlgPSdzfa_Sl3fQxOMXlKZUWdWdAWWLpnlj5ilfiXSLazh151zfeV506LhbKYhnuEPL2qVQQ%21%%21%21/) | 2+0 | exam | **1** | **SS** |

Student selects one subject from the menu.

**DSP – Main Subjects of the Field compulsory optional subjects (B)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course title** | **Abbrev.** | **Scope** | **Conclusion** | **Grade** | **Sem.** |
| Nanofibres and Nanotechnologies | [KNT/D42](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Clothing Comfort | [KHT/D52](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Practical Stereology | [KNT/D44](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Sorption Processes | [KMI/D13](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Structure and Properties of Tex. Fibers | [KMI/D07](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Structural Theory of Fibrous Assem. | [KTT/D11](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Textile Chemistry | [KMI/D24](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS** |
| Tissue Engineering | KNT/D40 | 2+0 | exam | **2** | **WS** |
| Chemical and Thermal Tech. of Nonwovens | [KNT/D25](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **SS** |
| Textiles Projection | [KMI/D20](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **SS** |
| Simulation of the Apparel Processes | [KOD/D15](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **SS** |
| Simulation in Material Engineering | [KNT/D21](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **SS** |
| Theoretical Textile Metrology | [KMI/D08](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **SS** |
| Transport Phenomena of Forming | [KOD/D16](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY7dboJAFISfqDnHXWHr5RZaoHEXcc_Kzw0hsWkkVdBSEJ6-mLSXtjOXk5n5oIDZp6o_vFfdoTlVH5BB4ZYiTgK-8RnGxuPIeGwXjv-CKNmc527pBTJcijViIJiDTDuGKblDjPg_7RQyXJamfmzV2GXryeupnpJRk2Wacq6EHNSeNvvd1j5J78xqquZOcVv96_OW4x1JBB02xzfIoRB32RIE-mEbmy9jrq8r63aLqLQdJaOqc6anaNAXNWh65npK8VP_cvoP6Zk4tEfbt-GA3xrBpzw%%21%21/) | 2+0 | exam | **2** | **WS, SS** |

Student selects one subject from the menu.

**DSP compulsory subjects (A)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course title** | **Abbrev.** | **Scope** | **Conclusion** | **Grade** | **Sem.** |
| Experimental technique of the textile | [DFT/D33](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Bc4IwFIR_0nsGIe0xYgU65iFNYoELQ8dOx7QCdSIUfn1xxqvt7nFndz8oYXZT98eP2h3bpv6CHMqg4mkWebs1w1SFHjIvNQt_vUEUbM6LoAojES_5FjHizEdGvmJS7BET75_2K-S4rJR96OTo8u0U9tpO2UjaMHorBrIJ0iHfHfYvZiVE0_BvO3fK6-pfn9cc70ggUNye3qGAkt9lyxD0jW1sL0r9PD-awC2SyjidjdIWjKZkoLMcSD95NBmULr5xri6bz3MP3cn0XTzgL1zDWeE%%21%21/) | 0+0 | exam | **3** | **WS** |
| Specialization in Field | DFT/D30 | 2+0 | exam | **3** | **SS** |

Student has to fulfil both subjects.

**DSP – internship elective subjects (C)**

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| --- | --- | --- | --- | --- | --- |
| **Course title** | **Abbrev.** | **Scope** | **Conclusion** | **Grade** | **Sem.** |
| Internship in a Company I. | [DFT/D60](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwFIV_0r22AttjhQ0wtsjaKvDSsMwY2RSydLD21w8TX5335D6dnHM-aGDWpR1Px9ae-kv7BRU0oYmKMqXbhGAhY4qEFnoRJK-IjMx-HZo4Zdky2iCmEQmQiEASznaIOX2Q3kOFSyO7p4E7W218PKrOl04oTeZ3okuJEMn2Y_emV2zlA9rnc6a5tv63efXxzjEEkfXnA9TQRHfZSgR1Y3P9j5S_62cd2kVutFWl411NhM8n8c0noV6o8Bq5fb9xJvv1p3EwnPU4ZBP-ARWBiCk%%21%21/) | 12w | pass | **3** | **WS, LS** |
| Internship in a Company II. | [DFT/D61](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwFIV_0r22AttjhQ0wtsjaKvDSsMwY2RSydLD21w8TX5335D6dnHM-aGDWpR1Px9ae-kv7BRU0oYmKMqXbhGAhY4qEFnoRJK-IjMx-HZo4Zdky2iCmEQmQiEASznaIOX2Q3kOFSyO7p4E7W218PKrOl04oTeZ3okuJEMn2Y_emV2zlA9rnc6a5tv63efXxzjEEkfXnA9TQRHfZSgR1Y3P9j5S_62cd2kVutFWl411NhM8n8c0noV6o8Bq5fb9xJvv1p3EwnPU4ZBP-ARWBiCk%%21%21/) | 12w | pass | **3** | **WS, LS** |
| Internship Abroad I | [DFT/D62](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwFIV_0r22AttjhQ0wtsjaKvDSsMwY2RSydLD21w8TX5335D6dnHM-aGDWpR1Px9ae-kv7BRU0oYmKMqXbhGAhY4qEFnoRJK-IjMx-HZo4Zdky2iCmEQmQiEASznaIOX2Q3kOFSyO7p4E7W218PKrOl04oTeZ3okuJEMn2Y_emV2zlA9rnc6a5tv63efXxzjEEkfXnA9TQRHfZSgR1Y3P9j5S_62cd2kVutFWl411NhM8n8c0noV6o8Bq5fb9xJvv1p3EwnPU4ZBP-ARWBiCk%%21%21/) | 12w | pass | **3** | **WS, LS** |
| Internship Abroad II | [DFT/D63](https://stag-new.tul.cz/wps/myportal/%21ut/p/c5/hY5Rb4IwFIV_0r22AttjhQ0wtsjaKvDSsMwY2RSydLD21w8TX5335D6dnHM-aGDWpR1Px9ae-kv7BRU0oYmKMqXbhGAhY4qEFnoRJK-IjMx-HZo4Zdky2iCmEQmQiEASznaIOX2Q3kOFSyO7p4E7W218PKrOl04oTeZ3okuJEMn2Y_emV2zlA9rnc6a5tv63efXxzjEEkfXnA9TQRHfZSgR1Y3P9j5S_62cd2kVutFWl411NhM8n8c0noV6o8Bq5fb9xJvv1p3EwnPU4ZBP-ARWBiCk%%21%21/) | 12w | pass | **3** | **WS, LS** |