



2018-1-SK01-KA203-046318

O4

Popis metadat u kurikula založeného na výstupech z učení

tým BCIME



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Popis intelektuálního výstupu

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|--|--|
| Identifikace výstupu | O4 |
| Název výstupu | Popis metadat u kurikula založeného na výstupech z učení |
| Popis výstupu (včetně inovačních prvků, očekávaného dopadu a potenciálu přenositelnosti) | Tento výstup zahrnuje podrobnou formální parametrickou specifikaci dvou částí kurikula pro lékařské a zdravotnické obory pro každou partnerskou instituci (hlavní a doplňkové obory) v souladu se zavedenými pokyny, osvědčenými postupy a metodikou založenou na výstupech z učení. Tento přístup nabízí atraktivní způsob, jak rozvíjet a efektivně reformovat vzdělávání budoucích lékařů s ohledem na požadavky místních institucí, kdy důraz je kladen více na „produkt“ (tzn. jaký typ absolventů lékařské fakulty měly „produkovat“) než na samotný vzdělávací proces. Designéři kurikula (učitelé, garanti) budou vytvářet podrobné popisy metadat na úrovni jednotlivých předmětů, učebních jednotek a výstupů. |
| Typ výstupu | Metodiky / postupy – metodický rámec pro implementaci |
| Rozdělení práce, úkolů vedoucích k tvorbě intelektuálního výstupu a použítá metodika | Jednotlivé partnerské instituce měly následující úkoly a role: *** UPJŠ – Tvorba popisu metadat založených na výstupech z učení pro hlavní a doplňkové lékařské obory. *** JU – Tvorba popisu metadat založených na výstupech z učení pro hlavní a doplňkové lékařské obory. *** UMF – Tvorba popisu metadat založených na výstupech z učení pro hlavní a doplňkové lékařské obory. *** UAU – Tvorba popisu metadat založených na výstupech z učení pro hlavní a doplňkové lékařské obory. *** MU – Tvorba popisu metadat založených na výstupech z učení pro hlavní a doplňkové lékařské obory. |
| Datum zahájení | 1. července 2019 |
| Datum ukončení | 30. listopadu 2020 |
| Jazyky | čeština angličtina němčina poština rumunština slovenština |
| Média | databáze papírové brožury |
| Organizace, která vede aktivitu | Lékařská a farmaceutická univerzita v Jasech (Rumunsko) |
| Zúčastněné organizace | Univerzita Pavla Jozefa Šafárika v Košicích (Slovensko) Masarykova univerzita (Česká republika) Augsburská univerzita (Německo) Jagellonská univerzita (Polsko) |

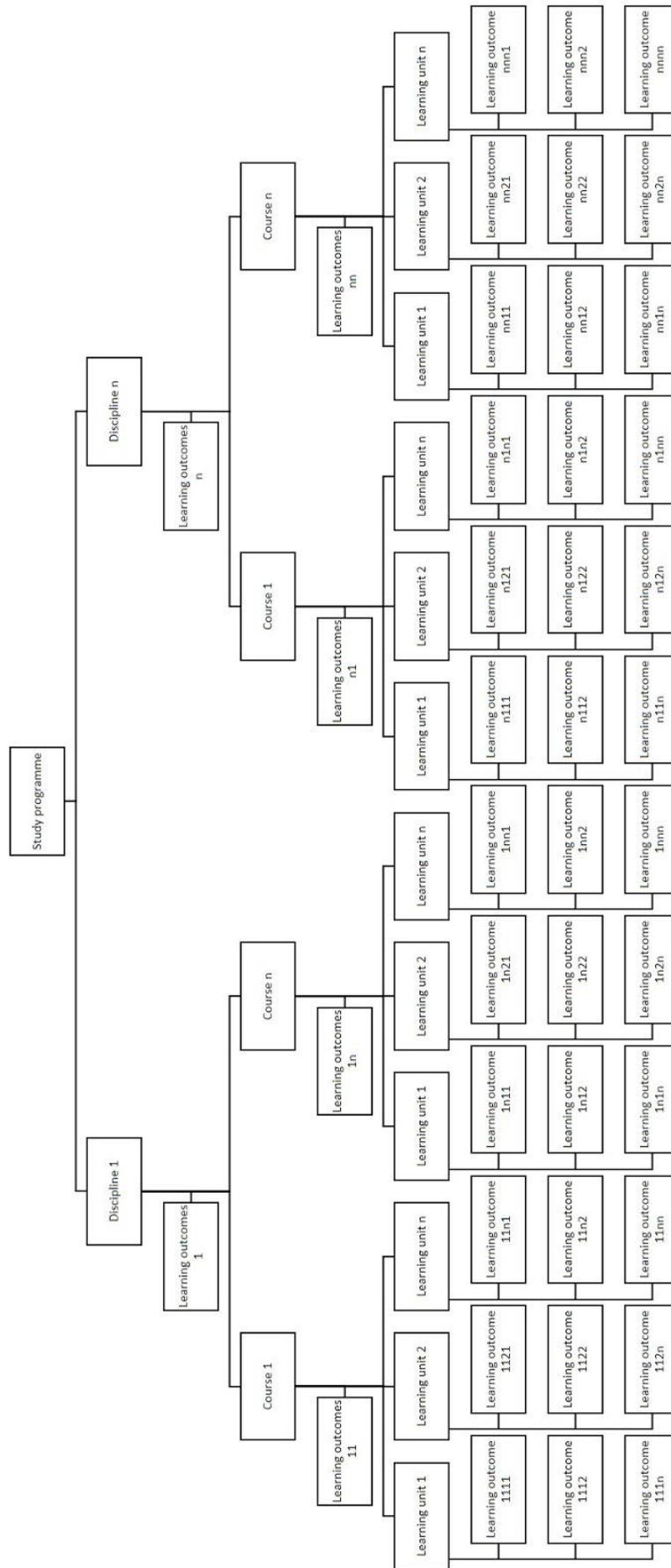
1. Úvod

V digitálním světě je potřeba stále větší množství informací nejen ukládat, ale také zpracovávat, analyzovat, hodnotit a poskytovat konkrétním uživatelům. Proto jsou strukturovaná data často popisována metadaty, která usnadňují vyhledávání a práci s informacemi. Za účelem zpracování dat vztahujících se ke kurikulu – a také zpřístupnění pokročilých funkce mapování a přehledu konkrétním skupinám uživatelů – implementační tým BCIME extrahoval a zadal obsah kurikula anatomie do nově vyvinuté platformy pro správu kurikula EDUportfolio ve formě strukturovaných metadat. Tento rámec byl rovněž nezbytný k umožnění implementace a realizace různých analýz založených na textech. Všichni partneři použili skutečný obsah kurikula, tak jak je vyučován na jejich univerzitách, a zpracovali jej v angličtině pro pozdější srovnávací studie. Každá partnerská univerzita navíc popsala jeden doplňkový obor v místním jazyce.

2. Struktura metadat

Struktura popisu metadat byla odvozena z požadavků a doporučení, které byly průběžně identifikovány v dříve dokončených intelektuálních výstupech projektu BCIME (viz O1, O2 a O3). Následující diagram představuje zobecněné schéma kategorizace metadat, které bylo navrženo v rámci platformy EDUportfolio (viz obr. 1).

Pro komplexnější pohled na složitost metodického rámce je potřeba uvedené schéma promítnout do studijních programů, které nabízí daná univerzita. Poté je potřeba znovu je vynásobit počtem univerzit / fakult, které jsou zapojeny do procesu mapování osnov, tak jak bylo navrženo v rámci platformy EDUportfolio.



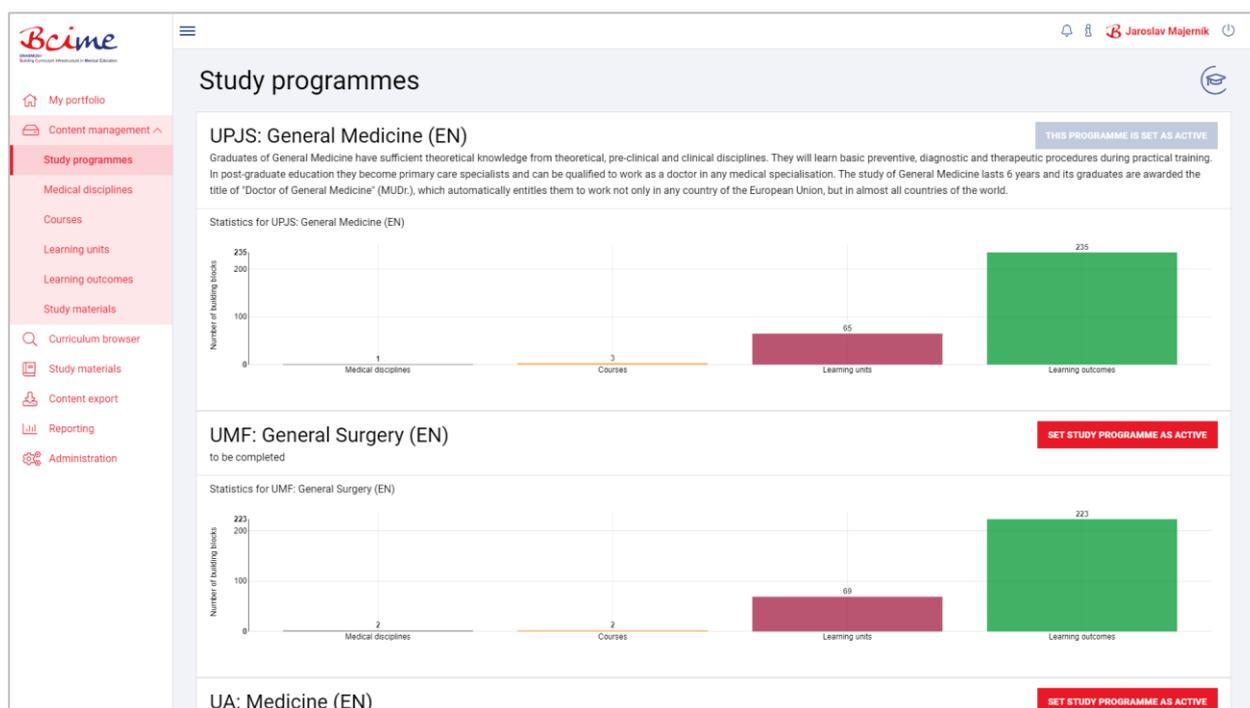
Obrázek 1: Zobecněné schéma kategorizace metadat navržené v rámci platformy EDUportfolio.

3. Popis metadat

3.1 Popis metadat pro anatomii

Všichni partneři popsali v angličtině kurikulum anatomie. Kromě toho tým BCIME odsouhlasil, aby byly specifikovány latinské výrazy v klíčových slovech, neboť latina se v anatomii běžně používá. Napříč konsorciem byla odhalena řada rozdílů, neboť vzdělávací systémy se v partnerských zemích vzájemně liší. Například v Německu bylo kurikulum přeloženo a vložen do EDUportfolio ve formě výstupů z učení. Němečtí partneři ze svého národního katalogu založeného na kompetencích použili pouze ty výstupy z učení, které se vztahují k anatomii, a namapovali je do čtyř předmětů (modulů), které plánují začlenit do kurikula na Augsburské univerzitě. Augsburská univerzita nepoužívá kurikulum založené na oborech, proto bylo možné provést tento popis metadat, a nevládat do metadat nevládat žádné „uměle“ vytvořené výukové jednotky. Na druhou stranu, české a slovenské kurikulum vykazovalo vzájemně vysokou podobnost, neboť vzdělávací systém v obou zemích je podobný – přestože v těchto partnerských zemích neexistují žádné celonárodní výstupy z učení ani katalogy cílů učení.

Všechny studijní programy všech partnerských institucí jsou přístupné z jednoho místa v rámci platformy EDUportfolio, jak je znázorněno na následujícím obrázku.



Obrázek 2: Přehled studijních programů zmapovaných v platformě EDUportfolio.

Aktuální stav popisu metadat pro anatomii, tak jak je popsán v platformě EDUportfolio, je shrnut v tabulce 1. Grafické znázornění obsahu kurikula anatomie je znázorněno na obrázcích 3, 4 a 5.

Tabulka 1: Přehled stavebních bloků kurikula vztahujících se k anatomii, tak jak jsou popsány v platformě EDUportfolio.

| Instituce | Disciplíny | Předměty | Výukové jednotky | Výstupy z učení |
|-----------|------------|----------|------------------|-----------------|
| UPJS | 1 | 3 | 67 | 237 |
| UMF | 2 | 2 | 69 | 223 |
| UAU | 2 | 4 | N/A | 407 |
| JU | 1 | 1 | 52 | 13 |
| MU | 3 | 5 | 21 | 132 |

Obrázek 3: Příklady předmětů vztahujících se k anatomii, které jsou zmapovány v platformě EDUportfolio.

Obrázek 4: Příklady výukových jednotek vztahujících se k anatomii, které jsou zmapovány v platformě EDUportfolio.

| Title | Level | Action |
|---|-------|--------|
| Student analyzes anatomical structures and parts of brain | | |
| Student analyzes function of Branchial plexus | | |
| Student analyzes function of Lumbar and Sacral plexus | | |
| Student analyzes gender differences of pelvis | | |
| Student analyzes surface anatomy | | |
| Student categorizes components of Pericardium | | |
| Student characterizes anatomical structure and function of spinal cord | | |
| Student characterizes anatomical structures of the head | | |
| Student characterizes anatomical structures of the neck | | |
| Student characterizes and distinguishes parts of cerebrospinal fluid system | | |
| Student characterizes arterial anastomoses of the neck | | |
| Student characterizes borders of midbrain | | |
| Student characterizes branches of abdominal aorta | | |
| Student characterizes central and peripheral nervous system | | |
| Student characterizes connection of bones | | |
| Student characterizes different types of nerve tracts | | |
| Student characterizes dislocations of particular parts of lower limb | | |
| Student characterizes dislocations of particular parts of upper limb | | |
| Student characterizes division of midbrain | | |

Obrázek 5: Příklady výstupů z učení vztahujících se k anatomii, které jsou zmapovány v platformě EDUportfolio.

3.2 Popis metadat pro neurochirurgii

Tým UMF popsal doplňkový lékařský obor Neurochirurgie v rumunštině. Neurochirurgie na UPMF je vyučována v 5. ročníku, a to v rámci čtyř přednášek a sedmi klinických lekcí. Výukové jednotky a výstupy učení byly definovány tak, aby jejich interaktivita a dynamičnost zvýšily zájem studentů o tento obor. Jednotlivé stavební bloky, které již byly popsány, obsahují následující výsledky:

- Disciplíny: 2 (anatomie a neurochirurgie)
- Předměty: 11
- Výukové jednotky: 390
- Výstupy z učení: 333



Obrázek 6: Přehled studijních programů, které UMF zmapovala v platformě EDUportfolio.

| Titlu | Status | Curs | Acțiune |
|---|-----------|----------|---------|
| Dezvoltarea cordului. Formarea tubului și ansei cardiace. Dezvoltarea sinusului venos. | Finalizat | OLD A1S2 | Q |
| Dezvoltarea sistemului vascular arterial, venos și limfatic. | Finalizat | OLD A1S2 | Q |
| Formarea sistemului autoexcitocolector al inimii. Formarea sistemului autoexcitocolector al inimii. | Finalizat | OLD A1S2 | Q |
| Principii de organizare funcțională a cordului și vaselor. | Finalizat | OLD A1S2 | Q |
| 1. Scheletul trunchiului | Finalizat | A1 | Q |
| 1. Morfogeneza și principii de organizare funcțională la nivelul sistemului nervos central | Finalizat | A4 | Q |
| 1. Sistemul respirator | Finalizat | A2 | Q |
| 1. Neurocraniul | Finalizat | A3 | Q |
| 10. Vasculazatia membrului superior | Finalizat | A1 | Q |
| 10. Sistemul acustico-vestibular | Finalizat | A4 | Q |
| 10. Arterial system of head and neck | Finalizat | A3 ENG | Q |
| 10. Sistemul arterial al capului și gâtului | Finalizat | A3 | Q |
| 11. Inervația membrului inferior | Finalizat | A1 | Q |
| 11. Sistemul gustativ | Finalizat | A4 | Q |
| 11. The innervation of the lower limb | Finalizat | A1 ENG | Q |

Obrazek 7: Výukové jednotky kurzu Neurochirurgie, které UMF zmapovala v platformě EDUportfolio.

| Titlu | Nivel | Acțiune |
|---|-------|---------|
| Student analizează anatomic coloana vertebrala, cu identificarea caracterelor generale, regionale și particulare. | Nivel | Q |
| Student analizează anatomic și explica drenajul limfatic al membrului superior | Nivel | Q |
| Student analizează anatomic și identifica arterele principale ale membrului superior | Nivel | Q |
| Student analizează anatomic și identifica venele principale ale membrului superior | Nivel | Q |
| Student analizează anatomic și imagistic a articulațiilor membrului superior liber și ale centurii membrului superior | Nivel | Q |
| Student analizează anatomic și imagistic a oaselor membrului inferior liber și ale centurii membrului inferior | Nivel | Q |
| Student analizează anatomic și imagistic articulațiile membrului inferior liber și ale centurii membrului inferior | Nivel | Q |
| Student analizează explorarea anatomică și identificarea oaselor ce constituie neurocraniul | Nivel | Q |
| Student analizează identificarea și explorarea anatomică a meningelui cranian cu identificarea prelungilor și spațiilor | Nivel | Q |
| Student analizează proiecția zonelor slabe ale peretelui abdominal | Nivel | Q |
| Student analizează proiecții și descoperiri la nivelul pereților trunchiului | Nivel | Q |
| Student analizează proiecții și descoperiri neurovasculare la nivelul membrului inferior | Nivel | Q |
| Student analizează proiecții și descoperiri neurovasculare la nivelul membrului superior | Nivel | Q |
| Student analizează the main anomalies that result from the disruption of the processes that occur during weeks 4 to 8 and during the fetal period | Nivel | Q |

Obrazek 8: Výukové jednotky kurzu Neurochirurgie, které UMF zmapovala v platformě EDUportfolio.

3.3 Popis metadat pro záchovnou a protetickou stomatologii

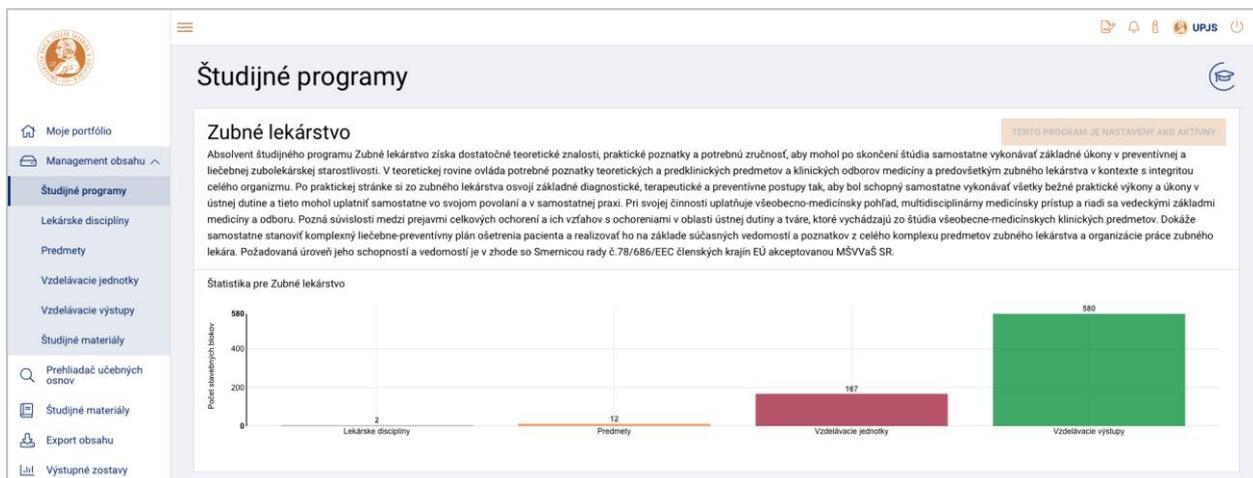
Tým UPJŠ popsal obor Konzervativní a protetické zubní lékařství ve slovenštině. Popsat metadata týkající se zubního lékařství byla větší výzva než ve všech oborech souvisejících s všeobecným lékařstvím; zubní lékařství je totiž poměrně specifický obor, a to nejen kvůli jeho praktičtější orientovanému kurikulu. Platforma nicméně byla rozšířena o novou disciplínu (zubní lékařství), a pokud jde o její univerzálnost, popis byl proveden stejným způsobem jako v jiných oborech. Jednotlivé stavební bloky, které již byly popsány, obsahují následující výsledky:

Disciplíny: 2 (záchovná stomatologie, protetická stomatologie)
Předměty: 12 (Záchovná stomatologie 1, Záchovná stomatologie 2, Záchovná stomatologie 3, Záchovná stomatologie 4, Záchovná stomatologie 5, Záchovná

stomatologie 6, Protetická stomatologie 1, Protetická stomatologie 2,
Protetická stomatologie 3, Protetická stomatologie 4, Protetická stomatologie
5, Protetická stomatologie 6)

Výukové jednotky: 167

Výstupy z učení: 580



Obrázek 9: Přehled záchovné a protetické stomatologie, tak jak je zmapovala UPJŠ v platformě EDUportfolio.

| Názov | Stav | Predmet | Akcia |
|---|-----------|----------------|-------|
| Terapia patologických stavov zubnej drene - vitálna amputácia a extripácia zubnej drene - indikácia, pracovné postupy. Vyšetrenie a ošetrovanie pacienta. | Dokončené | SK/KZL-ZL3/15 | 🔍 📄 |
| Adhézia - väzba v sklovine, v dentíne. Základné princípy a otázky väzby výplňových materiálov. | Dokončené | SK/KZL-ZL2/15 | 🔍 📄 |
| Adhézia a adhezíva v konzervačnom zubnom lekárstve | Dokončené | SK/KZL-ZL2/15 | 🔍 📄 |
| Administratívne nariadenia a predpisy v protetike | Dokončené | SK/PrZL-ZL3/19 | 🔍 📄 |
| Akútne apikálne parodontitídy - etiológia, klasifikácia, diagnostika, diferenciálna diagnostika | Dokončené | SK/KZL-ZL4/09 | 🔍 📄 |
| Akútne apikálne parodontitídy - etiológia, klasifikácia, klinický obraz, diagnóza, diferenciálna diagnostika. Vyšetrenie a ošetrovanie pacienta. Vstupný test č.1 z učiva 3. a 4. roku štúdia: kariológia, endonocia I. časť. | Dokončené | SK/KZL-ZL4/09 | 🔍 📄 |
| Amalgámová výplň - história, súčasnosť, budúcnosť. Súčasné pohľady na indikáciu uvedeného výplňového materiálu | Dokončené | SK/KZL-ZL6/15 | 🔍 📄 |
| Artikulačný problém | Dokončené | SK/PrZL-ZL6/15 | 🔍 📄 |
| Atypické riešenia vo fixnej protetike | Dokončené | SK/PrZL-ZL3/19 | 🔍 📄 |
| Atypické riešenie celkových protéz | Dokončené | SK/PrZL-ZL6/15 | 🔍 📄 |
| Celkové zubné náhrady | Dokončené | SK/PrZL-ZL5/19 | 🔍 📄 |
| Celoplášťové kovové korunky | Dokončené | SK/PrZL-ZL2/15 | 🔍 📄 |

Obrázek 10: Výukové jednotky záchovné a protetické stomatologie, tak jak je zmapovala UPJŠ v platformě EDUportfolio.

| Název | Úroveň | Akcia |
|---|--------|-------|
| Študent aplikuje etiológiu akútnej apikálnej parodontitídy | | |
| Študent aplikuje etiológiu chronickej apikálnej parodontitídy | | |
| Študent aplikuje etiológiu dentínovej hypersenzitívy | | |
| Študent aplikuje etiológiu hyperémie | | |
| Študent aplikuje etiológiu nekrózy a gangrény zubnej drene | | |
| Študent aplikuje etiológiu, diagnostiku a diferenciálnu diagnostiku | | |
| Študent aplikuje hygienu ústnej dutiny | | |
| Študent aplikuje klinické zásady preparácií - konvenčné | | |
| Študent aplikuje pracovné postupy nepriameho a priameho prekrytia zubnej drene | | |
| Študent aplikuje pracovný postup pri inlay - onlay | | |
| Študent aplikuje preparačné pravidlá zo súčasného hľadiska | | |
| Študent aplikuje súčasné preparačné postupy v praxi | | |
| Študent aplikuje terapeutické možnosti akútnych a chronických apikálnych parodontitíd | | |
| Študent aplikuje terapeutické postupy nekariéznych defektov tvrdých zubných tkanív | | |
| Študent aplikuje terapeutické postupy so zachovaním živej zubnej drene | | |

Obrázek 11: Výstupy z učení záchovné a protetické stomatologie, tak jak je zmapovala UPJŠ v platformě EDUportfolio.

3.4 Popis metadat pro klinické a komunikační dovednosti

Tým UAU popsal v němčině klinické a komunikační dovednosti, které jsou popsány v Národním kompetenčním katalogu cílů učení pro lékařství (NKLM¹). Jednotlivé stavební bloky obsahují:

| | |
|-------------------|-------------------------------|
| Disciplíny: | žádné (integrované kurikulum) |
| Předměty: | 1 |
| Výukové jednotky: | 1 |
| Výstupy z učení: | 87 |

Kurikulum lékařské fakulty v Augsburgu je aktuálně ve stadiu vývoje, první studenti nastoupili na podzim roku 2019. Kurikulum není založeno na disciplínách, ale sleduje integrovaný přístup; proto nebyly zadány tradiční disciplíny a předměty. Místo toho jsou klinické a komunikační dovednosti součástí mnoha interdisciplinárních modulů a předmětů. Vývoj kurikula se opírá o katalog NKLM, proto zde definované cíle učení byly brány jako základ pro tento intelektuální výstup. Výukové jednotky pro toto kurikulum zatím nebyly definovány, proto virtuálnímu kurzu a výukové jednotce byly přiřazeny všechny cíle NKLM.



Obrázek 12: Přehled klinických a komunikačních dovedností, tak jak je zmapovala UAU v platformě EDUportfolio.

¹ www.nklm.de

Obrázek 13: Výukové jednotky klinických a komunikačních dovedností, tak jak je zmapovala UAU v platformě EDUportfolio.

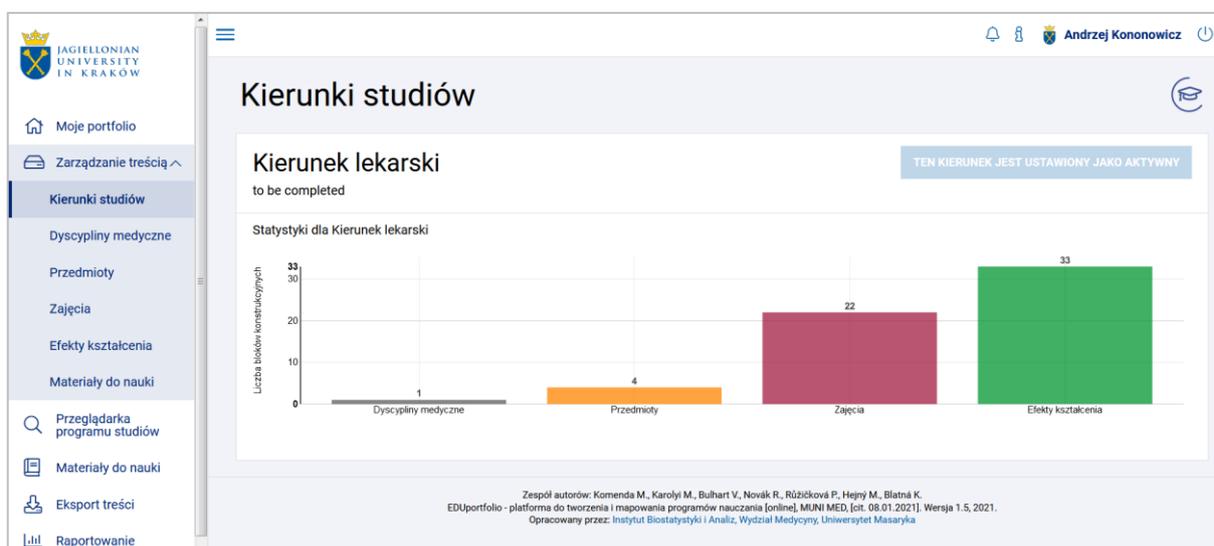
Obrázek 14: Výstupy z učení klinických a komunikačních dovedností, tak jak je zmapovala UAU v platformě EDUportfolio.

Obrázek 15: Details jednoho cíle učení – kód odkazuje na cíl NKLM.

3.5 Popis metadat pro komunikační dovednosti

Tým JU popsal komunikační dovednosti v polštině. Jednotlivé stavební bloky, které již byly popsány, obsahují následující výsledky:

- Disciplíny: 1 (Komunikační dovednosti včetně aspektů profesionality (Umiejętności komunikacyjne z elementami profesjonalizmu) v rámci všeobecného lékařství (Kierunek lekarski))
- Předměty: 4 (Laboratorní nácvik klinických dovedností 1/4 (Laboratoryjne nauczanie umiejętności klinicznych 1/4), Laboratorní nácvik klinických dovedností 2/4, Laboratorní nácvik klinických dovedností 3/4, Laboratorní nácvik klinických dovedností 4/4)
- Výukové jednotky: 22
- Výstupy z učení: 33



Obrázek 16: Přehled komunikačních dovedností, tak jak je zmapovala JU v platformě EDUportfolio.

Zajęcia

Pokaż 25 pozycji Szukaj:

| Tytuł | Stan | Przedmiot | Akcja |
|---|-----------|------------|-------|
| LabNuk 1/4 Zajęcia 1 Nauka umiejętności zbierania wywiadu - Informacje ogólne | Ukończone | LabNuk 1/4 | 🔍 🗑️ |
| LabNuk 1/4 Zajęcia 2 Nauka umiejętności zbierania wywiadu - Perspektywa biomedyczna | Ukończone | LabNuk 1/4 | 🔍 🗑️ |
| LabNuk 1/4 Zajęcia 3 Nauka umiejętności zbierania wywiadu - Perspektywa Pacjenta | Ukończone | LabNuk 1/4 | 🔍 🗑️ |
| LabNuk 1/4 Zajęcia 4 - Nauka umiejętności zbierania wywiadu - powtórka | Ukończone | LabNuk 1/4 | 🔍 🗑️ |
| LabNuk 2/4 Zajęcia 1 Przekazywanie Informacji - wstęp | Ukończone | LabNUK 2/4 | 🔍 🗑️ |
| LabNuk 2/4 Zajęcia 2 Przekazywanie Informacji - sytuacje zaawansowane | Ukończone | LabNUK 2/4 | 🔍 🗑️ |
| LabNuk 2/4 Zajęcia 3 Dialog Motywujący | Ukończone | LabNUK 2/4 | 🔍 🗑️ |

Liczba wpisów
22
Moje wpisy
0
Ukończone ?
0%

Ostatnio zmodyfikowany

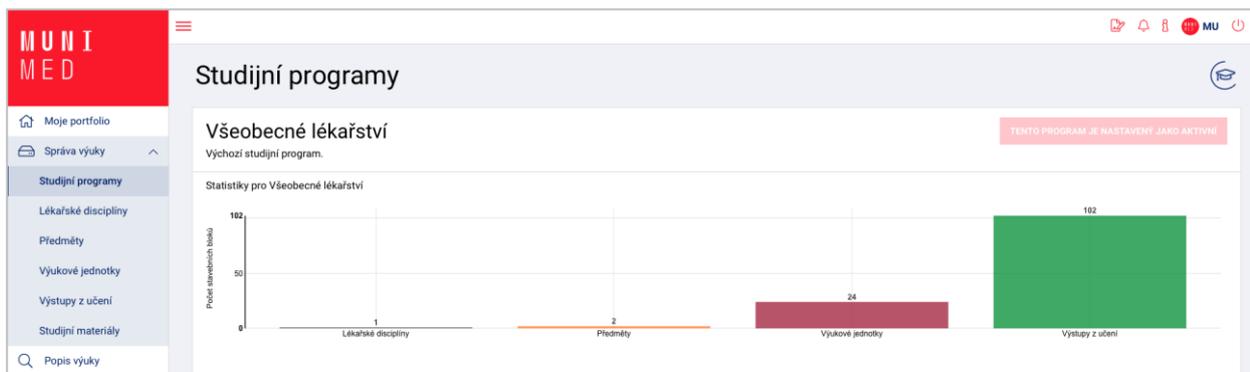
Obrázek 17: Výukové jednotky komunikačních dovedností, tak jak je zmapovala JU v platformě EDUportfolio.

Obrázek 18: Výstupy z učení komunikačních dovedností, tak jak je zmapovala JU v platformě EDUportfolio.

3.6. Popis metadat pro analýzu, management dat a informatiku pro specializaci na zdravotnictví

Tým MU popsal v češtině analýzu, management dat a informatiku pro specializaci na zdravotnictví. Pokročilá analýza dat pro neurovědy pokrývá soubor cílů pro zlepšení znalostí a praktických dovedností analýzy dat tím, že studenti se učí pokročilé vícerozměrné metody analýzy lékařských dat s ohledem na zvláštnosti velkých datových souborů v neurovědním výzkumu. Hlavní důraz je kladen na správnou aplikaci metod a interpretaci výsledků. Na teorii navazují praktické ukázky softwaru SPSS, R a MATLAB, které jsou na Masarykově univerzitě volně dostupné. Jednotlivé stavební bloky, které již byly popsány, obsahují následující výsledky:

- Disciplíny: 1 (Analýza dat)
- Předměty: 2 (Analýza dat pro neurovědy, Pokročilá analýza dat pro neurovědy)
- Výukové jednotky: 24 (Analýza dat pro neurovědy - 12, Pokročilá analýza dat pro neurovědy - 12)
- Výstupy z učení: 102 (Analýza dat pro neurovědy - 48, Pokročilá analýza dat pro neurovědy - 54)



Obrázek 19: Přehled analýzy, managementu dat a informatiky pro specializaci na zdravotnictví, tak jak je zmapovala MU v platformě EDUportfolio.

| Název | Stav | Předmět | Akce |
|--|-----------|---------|--------|
| Analýza kontingenčních tabulek | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Analýza přežití | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Hodnocení diagnostických testů | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Klasifikace | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Korelační analýza | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Metriky podobnosti a vzdálenosti ve vícerozměrném prostoru | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Modelová rozdělení dat | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Ordinační analýzy | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Principy redukce dimenzionality dat | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Předpracování vícerozměrných dat | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Relativní riziko a poměr šancí | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| ROC analýza | Dokončeno | DSAN01 | 🔍 ✎ 🗑️ |
| Selekce proměnných | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |
| Shluková analýza | Dokončeno | DSAN02 | 🔍 ✎ 🗑️ |

Obrázek 20: Výukové jednotky analýzy, managementu dat a informatiky pro specializaci na zdravotnictví, tak jak je zmapovala MU v platformě EDUportfolio.

| Název | Úroveň | Akce |
|---|--------|--------|
| Student aplikuje kritéria pro selekci proměnných při řešení praktických úloh | 🔴 | 🔍 ✎ 🗑️ |
| Student aplikuje vhodnou vizualizační metodu podle typu dat | 🔴 | 🔍 ✎ 🗑️ |
| Student aplikuje vhodný statistický test dle charakteru dat | 🔴 | 🔍 ✎ 🗑️ |
| Student charakterizuje princip jednotlivých metod klasifikace dat | 🔴 | 🔍 ✎ 🗑️ |
| Student charakterizuje rozdíly a princip jednorozměrné analýzy rozptylu dvojnásobného třídění bez interakcí a s interakcemi | 🔴 | 🔍 ✎ 🗑️ |
| Student charakterizuje vícerozměrné normální rozdělení | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje cíle shlukové analýzy | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje cíle transformace dat | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje cíle vícerozměrné analýzy rozptylu | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje jednotlivé míry hodnocení úspěšnosti klasifikace | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje podstatu jednotlivých metod ordinační analýzy | 🔴 | 🔍 ✎ 🗑️ |
| Student definuje pojmy hladina významnosti testu, síla testu a chyba I. a II. druhu | 🔴 | 🔍 ✎ 🗑️ |
| Student dokáže aplikovat pravidlo +/- 3 sigma | 🔴 | 🔍 ✎ 🗑️ |
| Student dokáže nalézt cut-off hodnotu nejlépe rozlišující skupiny subjektů | 🔴 | 🔍 ✎ 🗑️ |

Obrázek 21: Výstupy z učení analýzy, managementu dat a informatiky pro specializaci na zdravotnictví, tak jak je zmapovala MU v platformě EDUportfolio.

4. Závěr

V rámci tohoto intelektuálního výstupu byl vyvinut a implementován metodický rámec a databáze metadat souvisejících s kurikulem. Tato databáze byla vytvořena jako součást nově vytvořené platformy pro správu kurikula EDUportfolio, která je k dispozici v angličtině i ve všech místních jazycích partnerů. Pomocí této platformy pro správu kurikula partneři projektu popsali vybrané části kurikula lékařských a zdravotnických oborů. Všichni partneři popsali anatomii, tak jak je vyučována na jejich univerzitách, neboť tato všeobecně vyučovaná disciplína je základem pro všechny lékařské a zdravotnické obory. Každý partner také popsal jeden doplňkový lékařský obor, a to ve svém vlastním jazyce. Mezi tyto

doplňkové disciplíny se řadí záchovná a protetická stomatologie (popsaná týmem UPJŠ ve slovenštině), komunikační dovednosti (popsané týmem JU v polštině), neurochirurgie (popsaná týmem UMF v rumunštině), klinické a komunikační dovednosti (popsané týmem UAU v němčině) a analýza, management dat a informatika pro specializaci na zdravotnictví (popsaná týmem MU v češtině).

Příloha

Popis metadat

Metadata description of Anatomy taught at partner institutions.

| Institution | Learning unit/Course | Learning outcome |
|-------------|-----------------------|---|
| MUNI | Digestive system | Student defines the digestive system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Digestive system | Student names all the organs of the digestive system and explain their morphology, basic structure and function. |
| MUNI | Digestive system | Student describes digestive organs on radiological method images. |
| MUNI | Digestive system | Student identifies digestive organs on radiological method images. |
| MUNI | Digestive system | Student summarizes the knowledge of the digestive system and assess correlation with other systems. |
| MUNI | Digestive system | Student knows the blood supply and innervation. |
| MUNI | Endocrine system | Student defines individual endocrine glands according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Endocrine system | Student identifies individual endocrine glands according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Endocrine system | Student explains the importance of the endocrine system, its basic function, shape, placement in the body, blood supply and innervation |
| MUNI | Endocrine system | Student identifies individual anatomical structures of the endocrine system on human anatomical preparations. |
| MUNI | Endocrine system | Student uses theoretical knowledge to be oriented about the placement of the endocrine glands and indicate their placement in individual topographic regions. |
| MUNI | Endocrine system | Student assesses mutual topographic relations between the endocrine system and other anatomic structures. |
| MUNI | Endocrine system | Student characterizes mutual topographic relations between the endocrine system and other anatomic structures. |
| MUNI | Female genital system | Student defines the female reproductive system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Female genital system | Student names all the organs of the female reproductive system. |
| MUNI | Female genital system | Student explains morphology, basic structure, and function of female reproductive system. |
| MUNI | Female genital system | Student knows the blood supply and innervation. |
| MUNI | Female genital system | Student describes the mutual topographical relationships of individual organs. |
| MUNI | Female genital system | Student summarizes all knowledge of the female reproductive system. |
| MUNI | Female genital system | Student assesses correlation with other systems. |
| MUNI | Gustatory system | Student identifies the gustatory system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Gustatory system | Student describes the gustatory system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Gustatory system | Student demonstrates placement of the gustatory system within the topographical relationship with neighbouring organs. |
| MUNI | Gustatory system | Student characterizes the importance of the gustatory system. |
| MUNI | Lymphatic system | Student explains basic morphology and function of all parts of the lymphatic system. |
| MUNI | Lymphatic system | Student describes topographic mutual relations between the lymphatic system and other systems. |
| MUNI | Lymphatic system | Student formulates normal structure of the lymphatic system. |
| MUNI | Lymphatic system | Student evaluates the studied anatomical structures on radiological images. |
| MUNI | Lymphatic system | Student defines the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA). |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---------------------------|--|
| MUNI | Lymphatic system | Student describes the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA). |
| MUNI | Lymphatic system | Student identifies the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA) |
| MUNI | Lymphatic system | Student names all parts of the lymphatic system. |
| MUNI | Male genital system | Student defines the male reproductive system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Male genital system | Student names all the organs of the male reproductive system. |
| MUNI | Male genital system | Student explains morphology, basic structure, and function of the male reproductive system. |
| MUNI | Male genital system | Student knows the blood supply and innervation. |
| MUNI | Male genital system | Student uses theoretical knowledge to be oriented in terms of position of individual organs. |
| MUNI | Male genital system | Student describes the mutual topographical relationships of individual organs. |
| MUNI | Male genital system | Student summarizes all knowledge about the male genital system. |
| MUNI | Male genital system | Student assesses correlation with other systems. |
| MUNI | Olfactory system | Student identifies the olfactory system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Olfactory system | Student describes the olfactory system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Olfactory system | Student demonstrates placement of the olfactory system within the topographical relationship with neighbouring organs. |
| MUNI | Olfactory system | Student characterizes the importance of the olfactory system |
| MUNI | Olfactory system | Student distinguishes functionally and macroscopically: regio respiratoria and regio olfactoria. |
| MUNI | Peripheral nervous system | Student describes the peripheral nervous system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Peripheral nervous system | Student identifies the peripheral nervous system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Peripheral nervous system | Student explains the importance of individual parts of the peripheral nervous system. |
| MUNI | Peripheral nervous system | Student identifies the individual anatomical structures of the peripheral nervous system on human anatomical preparations. |
| MUNI | Peripheral nervous system | Student demonstrates cranial nerves emerging from the brain stem and placement of peripheral nerves in various topographic regions. |
| MUNI | Peripheral nervous system | Student characterizes mutual topographic relationships between the peripheral nervous system and other anatomic structures. |
| MUNI | Peripheral nervous system | Student characterizes the progress and structure of anatomical formations of peripheral nerves. |
| MUNI | Peripheral nervous system | Student knows innervation area for each peripheral nerve. |
| MUNI | Respiratory system | Student knows the blood supply and innervation, basic structure and function. |
| MUNI | Respiratory system | Student summarizes all the knowledge of the respiratory system and assess interaction with other systems. |
| MUNI | Respiratory system | Student assesses interaction with other systems. |
| MUNI | Respiratory system | Student defines the respiratory system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Respiratory system | Student names all organs of the respiratory system. |
| MUNI | Respiratory system | Student explains morphology of all organs of the respiratory system. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|-----------------------|--|
| MUNI | Respiratory system | Student describes the topographic mutual relations between the internal organs. |
| MUNI | Respiratory system | Student identifies structures on the radiological method images. |
| MUNI | Skin | Student assesses interrelationships between other organs. |
| MUNI | Skin | Student describes skin according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Skin | Student names all layers of the skin (and its derivatives). |
| MUNI | Skin | Student explains morphology of all layers of the skin (and its derivatives). |
| MUNI | Skin | Student uses theoretical knowledge to be oriented about the mutual topographic relationships with other organs. |
| MUNI | Topographical anatomy | Student defines the topographical regions of the human body. |
| MUNI | Topographical anatomy | Student identifies basic anatomical structures in these regions (i.e. bones, joints, muscles, internal organs, blood vessels and nerves - knowledge of these structures builds on previous studies of systemic anatomy). |
| MUNI | Topographical anatomy | Student defines boundaries, content and individual layers of each region. |
| MUNI | Topographical anatomy | Student demonstrates the structures on cadavers. |
| MUNI | Topographical anatomy | Student assesses relationships between individual anatomical structures in topographic regions. |
| MUNI | Topographical anatomy | Student prepares anatomical specimen of the given studied region with the help of prescribed autopsy procedure and tools. |
| MUNI | Topographical anatomy | Student evaluates normal topographical arrangement of individual regions. |
| MUNI | Urinary system | Student names all organs of the excretory system and explain their morphology, basic structure, blood supply, innervation, and basic function. |
| MUNI | Urinary system | Student explains their morphology, basic structure, blood supply, innervation, and basic function. |
| MUNI | Urinary system | Student defines the excretory system according to the international anatomical terminology (PNA). |
| MUNI | Urinary system | Student summarizes all the knowledge of the excretory system and assess relation with other systems. |
| MUNI | Urinary system | Student describes the topographic mutual relations between the internal organs. |
| MUNI | Urinary system | Student describes basic anatomical structures in radiological methods. |
| MUNI | Urinary system | Student identifies basic anatomical structures in radiological methods. |
| MUNI | Veins | Student uses theoretical knowledge about the origin and structure of the venous system. |
| MUNI | Veins | Student demonstrates on cadavers outflow of blood from individual organs. |
| MUNI | Veins | Student names parts of the venous system. |
| MUNI | Veins | Student knows morphology of parts of the venous system. |
| MUNI | Veins | Student defines describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |
| MUNI | Veins | Student identifies describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |
| MUNI | Veins | Student describes describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--------------------------------|---|
| MUNI | Veins | Student identifies basic morphological structures on human preparations. |
| MUNI | Veins | Student assesses the anatomical structures on radiological images. |
| MUNI | Veins | Student describes fetal circulation (identify structures before and after birth). |
| MUNI | Vestibular and auditory system | Student identifies the vestibular and auditory system according to the internationally recognized anatomical terminology (PNA) (structure and placement of utriculus, sacculus, macula statica, canales et ductus semicirculares, cristae ampullares, neurons and structure of the cranial nerve VIII). |
| MUNI | Vestibular and auditory system | Student describes the vestibular and auditory system according to the internationally recognized anatomical terminology (PNA) (structure and placement of utriculus, sacculus, macula statica, canales et ductus semicirculares, cristae ampullares, neurons and structure of the cranial nerve VIII). |
| MUNI | Vestibular and auditory system | Student demonstrates placement of the vestibular system within the topographical relationship with neighbouring organs. |
| MUNI | Vestibular and auditory system | Student characterizes the importance of the vestibular system. |
| MUNI | Vestibular and auditory system | Student identifies individual anatomical structures of the ear on human anatomical preparations. |
| MUNI | Vestibular and auditory system | Student characterizes the importance of anatomical formations of the ear. |
| MUNI | Vestibular and auditory system | Student knows about the normal anatomic ratios of different ear structures and evaluate them on X-rays. |
| MUNI | Vestibular and auditory system | Student demonstrates placement of individual parts of the ear in various topographic regions. |
| MUNI | Visual system | Student describes the sensory organ eye according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Visual system | Student explains the importance of different structures. |
| MUNI | Visual system | Student uses the acquired theoretical knowledge to be oriented about the placement of the eye. |
| MUNI | Visual system | Student characterizes the mutual topographic relationships between the eye and other anatomical structures. |
| MUNI | Muscles | Student defines basic concepts of the general myology. |
| MUNI | Muscles | Student describes individual muscles of the human body using the internationally recognized anatomical terminology (PNA). |
| MUNI | Muscles | Student describes on each muscle its origin, insertion, innervation and function. |
| MUNI | Muscles | Student identifies appropriate muscles on anatomical specimens. |
| MUNI | Muscles | Student characterizes movements provided with individual muscles. |
| MUNI | Muscles | Student identifies individual muscle and groups of muscles on radiological method images. |
| MUNI | Osteology | Student defines basic concepts of general osteology. |
| MUNI | Osteology | Student describes skeleton structures including detailed relief using internationally acknowledged anatomical terminology (PNA) on anatomical specimens. |
| MUNI | Osteology | Student identifies skeleton structures including detailed relief using internationally acknowledged anatomical terminology (PNA) on anatomical specimens. |
| MUNI | Osteology | Student identifies bones and their structures on radiological method images. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|------------------------|--|
| MUNI | Arteries | Student defines arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |
| MUNI | Arteries | Student identifies arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |
| MUNI | Arteries | Student describes arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations. |
| MUNI | Arteries | Student explains morphology. |
| MUNI | Arteries | Student identifies basic morphological structures on human preparations. |
| MUNI | Arteries | Student demonstrates on cadavers vasculature of individual organs. |
| MUNI | Arteries | Student assesses the anatomical structures on radiological method images |
| MUNI | Arteries | Student assesses the interrelationship between arteries and other organs. |
| MUNI | Arthrology | Student describes connection of bones a divide them into synarthrosis and diarthrosis. |
| MUNI | Arthrology | Student identifies each joint (in accordance with internationally recognized Latin terminology PNA). |
| MUNI | Arthrology | Student describes each joint (in accordance with internationally recognized Latin terminology PNA). |
| MUNI | Arthrology | Student defines the range of movement in each joint. |
| MUNI | Arthrology | Student identifies individual joint structures in radiological methods. |
| MUNI | Central nervous system | Student describes the central nervous system according to the internationally recognized anatomical terminology (PNA). |
| MUNI | Central nervous system | Student uses the acquired knowledge to be oriented about the placement of individual organs of the nervous system. |
| MUNI | Central nervous system | Student characterizes the topographic mutual relations between the nervous system and other anatomic structures. |
| MUNI | Central nervous system | Student summarizes all knowledge of human anatomy obtained through previous studies. |
| MUNI | Central nervous system | Student assesses the relationship between the different studied organs. |
| MUNI | Central nervous system | Student explains the importance of the system. |
| MUNI | Heart | Student explains morphology. |
| MUNI | Heart | Student defines human anatomical preparation according to the internationally recognized anatomical terminology (PNA) of the heart. |
| MUNI | Heart | Student describes human anatomical preparation according to the internationally recognized anatomical terminology (PNA) of the heart. |
| MUNI | Heart | Student identifies basic morphological formations on the heart preparations. |
| MUNI | Heart | Student evaluates the studied anatomical structures of the heart on radiological method images. |
| MUNI | Heart | Student uses theoretical knowledge to be oriented about the placement of the heart and indicates on cadavers the topographical relationships of the heart with other organs. |
| MUNI | Heart | Student assesses interrelationship between the heart with other organs. |
| UA | Communication skills | Student is able to reflect on the collaboration in the multi-professional team and designs it in a constructive manner with a view to high quality in patient care. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|---|
| UA | Communication skills | Student shows a job-specific role identity and know the roles, competencies and areas of responsibility of the other professional groups involved. |
| UA | Communication skills | Student identifies and classifies complications that have occurred as well as name medical, organizational and communicative consequences for damaging / avoiding damage. |
| UA | Communication skills | Student is able to develop professional goals at the beginning of career and career planning and take into account and communicates the work-life balance when implementing the goals. |
| UA | Communication skills | Student is able to process documented decision-making according to hierarchical, occupational group-dependent, communication-based and medical-legal aspects, as well as depict and critically evaluate the roles of those involved based on a given medical history. |
| UA | Communication skills | Student explains the basics of communication between the individual and social interaction partners and between social groups. |
| UA | Communication skills | Student is able to recognize the central importance of communication skills for the medical profession and for health care and knows that communication can be learned. |
| UA | Communication skills | Student is able to reflect typical sensitive topics in everyday medical work and arranges their communication appropriately, even in emotionally challenging situations. |
| UA | Communication skills | Student is able to successfully shape her communicative actions through the targeted use of communication strategies even in challenging clinical contexts and constellations. |
| UA | Communication skills | Student is able to reflect critically on one's own and others' roles in experienced situations and draws conclusions for the further course of action in the joint communication process. |
| UA | Communication skills | Student demonstrates appropriate handling of undesirable events and errors. |
| UA | Communication skills | Student uses specific data to show and communicate the possibilities and limits of professional (continuing education, leadership activities) and academic (doctorate, habilitation) career plans. |
| UA | Communication skills | Student is able to align her actions with values and norms. |
| UA | Communication skills | Student is able to contribute to the dissemination, application and translation of new knowledge and practices. |
| UA | Communication skills | Student is able to reflect and justify his communicative action on the basis of concepts and models of medical communication. |
| UA | Communication skills | Student explains the biopsychosocial model of the development of health and illness. |
| UA | Communication skills | Student explains the influence of doctor-patient communication on safety, adherence, outcome, quality of life, conflicts, coping strategies and satisfaction of doctors and patients. |
| UA | Communication skills | Student is able to adopt a patient-centered (congruent, accepting and empathic) basic attitude, communicate accordingly and thereby professionally design proximity and distance. |
| UA | Communication skills | Student applies techniques of systematic and structured information gathering. |
| UA | Communication skills | Student is able to give and receive this in accordance with the rules for constructive feedback |
| UA | Communication skills | Student is able to go into the subjective illness theory and the explanatory models of the patients, coordinate with the medical illness theories, values and interests and integrate them into the treatment |
| UA | Communication skills | Student is able to structure the conversation transparently from start to finish. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|--|
| UA | Communication skills | Student uses structuring conversation techniques and, depending on the task, use specific questioning techniques. |
| UA | Communication skills | Student is able to greet patients, introduce him or herself with name and function, and begin with opening questions that open up the discussion space for patients |
| UA | Communication skills | Student is able to take a medical history based on the situation. |
| UA | Communication skills | Student is able to take a development history |
| UA | Communication skills | Student is able to take an emergency medical history. |
| UA | Communication skills | Student is able to orientate him or herself to the needs and resources of the patients with regard to autonomy and responsibility, amount of information and completeness and respect their right to refuse information, especially when communicating a diagnosis |
| UA | Communication skills | Student designs decision-making processes together with patients or their caregivers, taking into account the requirements and possible consequences of judgment formation (participatory decision making / shared decision making). |
| UA | Communication skills | Student is able to individually clarify the patient's need for participation and shape decision-making processes together with them. |
| UA | Communication skills | Student explains health policy and economic factors influencing decision-making as well as the time and organizational framework. |
| UA | Communication skills | Student summarizes the session, discuss the next steps with the patient and concludes the patient discussion. |
| UA | Communication skills | Student is able to take a third-party medical history. |
| UA | Communication skills | Student is able to advise and educate patients and, if applicable, caregivers or nursing staff in detail about the use of the various medicines and prescriptions |
| UA | Communication skills | Student is able to hold a discharge interview |
| UA | Communication skills | Student is able to talk to the patient about the subject of living will |
| UA | Communication skills | Student is able to recognize strong or difficult emotions both in patients and their caregivers / guardians as well as communication disorders and respond accordingly in the conversation. |
| UA | Communication skills | Student is able to perceive and analyze conflicts, address them specifically to patients and, if applicable, caregivers, and appropriately classify the underlying socio-cultural dynamics and ethical dilemmas. |
| UA | Communication skills | Student is able to address this sensitively if suspected of being subjected to domestic violence |
| UA | Communication skills | Student is able to appropriately inquire about a possible biographical burden of abuse or sexual abuse in childhood in the history |
| UA | Communication skills | Student is able to convey bad news appropriately, taking into account a situation-specific discussion model |
| UA | Communication skills | Student is able to appropriately address psychosocial, gender-specific, age-specific, cultural, in particular family or job-related conflicts |
| UA | Communication skills | Student is able to transparently addresses cost issues by correctly presenting the necessity, the recommended scope and the justifiability of services to the patient |
| UA | Communication skills | Student analyzes his or her own mistakes and masters a situation-specific appropriate error communication. |
| UA | Communication skills | Student is able to communicate errors as promptly and directly as possible to the patient and, if applicable, their caregivers / guardians. |
| UA | Communication skills | Student knows and names typical challenging clinical contexts and can apply appropriate communication strategies. |
| UA | Communication skills | Student is able to have a conversation with non-adherent patients and take specific models into account |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|--|
| UA | Communication skills | Student explains measures of a crisis intervention in the event of a psychosocial crisis, a medical emergency, or a major loss event |
| UA | Communication skills | Student is able to is in a position to provide appropriate risk communication and information. |
| UA | Communication skills | Student is able to present diagnostic and therapeutic measures with their advantages and disadvantages and the expected success with the help of transparent risk communication techniques, and weigh and communicate benefits, risks and costs. |
| UA | Communication skills | Student explains positive and negative consequences of not using diagnostic and therapeutic measures. |
| UA | Communication skills | Student is able to consider uncertainty as an integral part of judgment and decision making, critically reflect on implicit and explicit judgment models of health and illness and deal with them appropriately. |
| UA | Communication skills | Student is able to recognize and communicate healthy and risky behaviors of patients and can support indicated changes in behavior through a basic knowledge of appropriate counseling and therapy options, including the possibility of medical rehabilitation. |
| UA | Communication skills | Student is able to hold resource-activating and autonomy-promoting discussions with patients |
| UA | Communication skills | Student is able to conduct advice and, if necessary, interventions to change behavior and lifestyle based on basic knowledge |
| UA | Communication skills | Student is able to hold an appropriate conversation in a multi-person setting. |
| UA | Communication skills | Student is able to hold discussions with caregivers / custodians / representatives, taking into account the patient's will and confidentiality |
| UA | Communication skills | Student is able to take personal views, circumstances and wishes of those who act on behalf of the patient into account when making decisions |
| UA | Communication skills | Student is able to treat patients as the primary contact, i.e. if possible, address them directly |
| UA | Communication skills | Student analyzes and reflects socio-demographic and socio-economic factors influencing communication and communicates accordingly. |
| UA | Communication skills | Student is able to reflect and take into account age, development, disability and gender-related influencing variables on communication. |
| UA | Communication skills | Student is able to adapt to the patient's understanding of language. |
| UA | Communication skills | Student is able to communicate in a gender-sensitive manner. |
| UA | Communication skills | Student is able to take into account developmental and age-related differences in communication. |
| UA | Communication skills | Student is able to be aware of the socio-cultural diversity and the plurality of values and norms in society and takes them into account appropriately in clinical situations. |
| UA | Communication skills | Student is able to perceive cultural, social, gender-related, socio-economic, religious and ideological value and norm systems differently among themselves and others and reflect on their importance for the individual case and for medical treatment |
| UA | Communication skills | Student is able to handle individual shame boundaries sensitively and at the same time explain and fulfill medical duties and tasks |
| UA | Communication skills | Student is able to take social stigmatization processes into account in their effects on health and illness and disability |
| UA | Communication skills | Student is able to acquire knowledge of socio-cultural diversity while remaining critical of simplifications (avoiding culturalization) |
| UA | Communication skills | Student applies strategies for culture-sensitive communication. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|---|
| UA | Communication skills | Student is able to be aware of the consequences of language barriers for the interaction with patients and their caregivers and take these into account when planning and conducting the interview. |
| UA | Communication skills | Student assesses the language skills and individual language level of patients and to adapt their own language level, e.g. for patients with a mother tongue other than German |
| UA | Communication skills | Student is able to specifically control the understanding of patients through measures to ensure understanding (verbal and non-verbal) and to intervene directly when there are problems of understanding |
| UA | Communication skills | Student is able to reflect on the advantages and disadvantages of using non-professional and professional interpreters in everyday clinical practice and to work competently with them |
| UA | Communication skills | Student is able to ask and take into account the relationship with the patient and take over the organization of the interpreting situation when using non-professional interpreters, especially in the case of relatives |
| UA | Communication skills | Student is able to carry out the medical tasks of communication while using interpreters and not delegate it to the interpreter. |
| UA | Communication skills | Student arranges the handling of patients whose perception and communication skills are limited and / or disturbed according to the special requirements. |
| UA | Communication skills | Student is able to inquire about the type and severity of the perception and communication disorder and communicate accordingly, with special attention to the setting. |
| UA | Communication skills | Student is able to take measures of "supported communication", i.e. to expand the communicative possibilities, use in conversation. |
| UA | Communication skills | Student uses other communication channels if one of the channels is restricted and, if necessary (and whenever patients read from the lips), separate the interaction from the communication and ensure understanding. |
| UA | Communication skills | Student is able to provide professional support if necessary |
| UA | Communication skills | Student is able to separate the interaction from the communication if necessary (and whenever patients read their lips or make eye contact). |
| UA | Communication skills | Student is able to effect the specific requirements of oral, written and electronic communication as well as public communication and interacts in a context-specific manner while observing data protection. |
| UA | Communication skills | Student is able to adapt his or her communication to the specific requirements of different types of oral communication. |
| UA | Communication skills | Student is able to hand over patients orally or by telephone to medical colleagues |
| UA | Communication skills | Student is able to deliver a patient orally or by telephone to a member of the nursing or other health professions using the appropriate medical language |
| UA | Communication skills | Student is able to present patients, prioritize their problems and systematically discuss the diagnostic and therapeutic management with colleagues including other health professions. |
| UA | Communication skills | Student is able to recognize the central importance of communication skills for the medical profession and health care and know that communication can be learned |
| UA | Communication skills | Student analyzes and reflects socio-demographic and socio-economic factors influencing communication and communicates accordingly. |
| UA | Communication skills | Student is able to behave respectfully in interprofessional collaboration and thus contribute to good patient care. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|--|
| UA | Communication skills | Student is able to observe patient safety and is aware of their immediate personal responsibility. |
| UA | Communication skills | Student is able to communicate errors adequately to patients and their relatives. |
| UA | Communication skills | Student is able to develop leadership skills. |
| UA | Communication skills | Student knows and takes into account the requirements for good clinical and scientific practice. |
| UA | Communication skills | Student is able to make the results of a scientific investigation accessible to medical practice. |
| UA | Communication skills | Student explains general theoretical basics of communication. |
| UA | Communication skills | Student explains the theoretical concepts of transference / countertransference, reciprocity, intersubjectivity and the influence of expectation and experience in their effects on doctor-patient communication. |
| UA | Communication skills | Student is able to build a trusting, stable doctor-patient relationship and master a professional and patient-centered conversation, taking into account the specific types of conversation, phases of the conversation and tasks. |
| UA | Communication skills | Student is able to simultaneously consider psychological, somatic, social, age-related and gender-related aspects of a disease during the conversation. |
| UA | Communication skills | Student is able to consider both verbal, non-verbal and para-verbal aspects in communication with him or herself and others. |
| UA | Communication skills | Student is able to obtain consent before and during the physical examination and explain the procedure. |
| UA | Communication skills | Student is able to offer support. |
| UA | Communication skills | Student practises time management adapted to different conversation situations and requirements |
| UA | Communication skills | Student is able to recognize and control the focus during the conversation and make an appropriate switch between doctor-centered and patient-centered conversation. |
| UA | Communication skills | Student is able to collect general and specific medical histories with the patient, structured according to the situation and disease, and to include information from other sources. |
| UA | Communication skills | Student is able to take a vegetative history. |
| UA | Communication skills | Student is able to carry out a psychosocial medical history, including a work history, possibly a history of migration. |
| UA | Communication skills | Student is able to take a medical history of health-related behaviors. |
| UA | Communication skills | Student is able to convey information, in particular diagnosis information, and explanations attentively and understandably, encourages inquiries and discussions and takes into account the patient's need for participation. |
| UA | Communication skills | Student is able to adequately communicate the findings of their significance for patients. |
| UA | Communication skills | Student explains and offers responsibilities in the decision-making process and to involve relevant people (e.g. parents, legal guardians, children, etc.) in the decision-making process. |
| UA | Communication skills | Student determines the expectations, concerns and preferences of patients and communicates their own expectations and treatment preferences in relation to this. |
| UA | Communication skills | Student plans the further, especially diagnostic and therapeutic steps and to conclude a patient consultation. |
| UA | Communication skills | Student designs various interview tasks taking into account their essential characteristics and requirements. |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|--|
| UA | Communication skills | Student is able to communicate a diagnosis. |
| UA | Communication skills | Student is able to provide a informative conversation |
| UA | Communication skills | Student is able to make a home visit |
| UA | Communication skills | Student is able to provide information and advice on participating in a self-support group |
| UA | Communication skills | Student is able to recognize situational and individual differences in emotion management and take them into account appropriately. |
| UA | Communication skills | Student knows and names typical sensitive subject areas that can occur in everyday medical work, and can conduct corresponding discussions or consultations sensitively and in accordance with current standards. |
| UA | Communication skills | Student is able to take appropriate measures if there is a suspicion of child abuse |
| UA | Communication skills | Student is able to have a sensitive conversation with the custody of a (seriously) ill child |
| UA | Communication skills | Student uses resource-activating and supportive interventions to a reasonable extent in seriously ill patients |
| UA | Communication skills | Student is able to communicate truthfully and empathetically with the dying and their relatives. |
| UA | Communication skills | Student is able to deal with general uncertainty about medical decisions and individual uncertainty and communicate them appropriately, taking into account their own role. |
| UA | Communication skills | Student is able to address his or her own mistakes to colleagues, analyze them in accordance with the situation with those responsible for the treatment and, if necessary together with patients, decide who will conduct the subsequent interviews |
| UA | Communication skills | Student is able to successfully shapes her communicative actions through the targeted use of communication strategies even in challenging clinical contexts and constellations. |
| UA | Communication skills | Student is able to recognize the central importance of communication skills for the medical profession and health care and know that communication can be learned |
| UA | Communication skills | Student is able to build a trusting, stable doctor-patient relationship and master a professional and patient-centered conversation, taking into account the specific types of conversation, phases of the conversation and tasks |
| UA | Communication skills | Student is able to reflect the specific requirements of oral, written and electronic communication as well as public communication and interacts in a context-specific manner while observing data protection. |
| UA | Communication skills | Student is able to communicate with the other health professions in the appropriate technical language. |
| UA | Communication skills | Student knows essential aspects of complication management, risk communication, the critical incident reporting system (CIRS), recognize critical events and are instructed in dealing with wrong decisions. |
| UA | Communication skills | Student is able to pursue career planning. |
| UA | Communication skills | Student is able to deal with the role of a young team member and their future development as a leader. |
| UA | Communication skills | Student explains the influences of third parties on the results or the communication of research, reflect and align their actions accordingly. |
| UA | Communication skills | Student is able to present scientific results in a form that is understandable to laypeople. |
| UA | Communication skills | Student explains specific basics of medical communication (influencing factors, specifics and requirements). |

| Institution | Learning unit/Course | Learning outcome |
|-------------|----------------------|---|
| UA | Communication skills | Student explains different models of doctor-patient communication and the different effects of patient-centered and doctor-centered communication. |
| UA | Communication skills | Student is able to build and maintain a positive, sustainable and trusting doctor-patient relationship through communicative action. |
| UA | Communication skills | Student is able to perceive, adopt and respect the patient perspective (ideas, feelings, autonomy, values, gender aspects, social, cultural and material environment) and include them in decisions. |
| UA | Communication skills | Student is able to perceive, distinguish and name his / her own and other emotions and feelings, such as shame or disgust, and use appropriate models to conduct the conversation in a manner that is appropriate in a situation. |
| UA | Communication skills | Student uses the participative decision making (PEM) / shared decision making (SDM) method. |
| UA | Communication skills | Student uses appropriate techniques to activate resources and promote personal responsibility. |
| UA | Communication skills | Student is able to set the agenda for the interview taking into account doctor and patient concerns and communicate accordingly. |
| UA | Communication skills | Student is able to find an appropriate start to the conversation and creates a conversation situation that is adapted to the general conditions. |
| UA | Communication skills | Student is able to inquire about medical knowledge, attitudes, experiences and expectations regarding the illness of patients. |
| UA | Communication skills | Student is able to get a system overview. |
| UA | Communication skills | Student is able to take a medical history, including allergies and intolerances. |
| UA | Communication skills | Student is able to take a sexual history, including a menstrual history. |
| UA | Communication skills | Student is able to provide understandable and empathetic information and advice |
| UA | Communication skills | Student tests the patient's understanding respectfully. |
| UA | Communication skills | Student is able to communicate information about the various treatment options with their advantages, disadvantages and risks in an understandable manner using aids. |
| UA | Communication skills | Student is able to address and take into account the interactions between the decision and the social environment of the patient. |
| UA | Communication skills | Student defines a common diagnostic and treatment plan and change it if necessary. |
| UA | Communication skills | Student is able to take a medical history. |
| UA | Communication skills | Student is able to give advice and refer to other suitable contact points |
| UA | Communication skills | Student is able to conduct a medical ward round. |
| UA | Communication skills | Student is able to provide information regarding inclusion in a clinical study |
| UA | Communication skills | Student is able to reflect typical sensitive topics in everyday medical work and arrange their communication appropriately, even in emotionally challenging situations. |
| UA | Communication skills | Student is able to recognize his or her own feelings in contact with others, especially patients and colleagues, reflect on concepts of transference and countertransference and maintain an appropriate and objective communication style. |
| UA | Communication skills | Student is able to perceive taboo topics and stigmatized illnesses, accept them and, if a deepening seems sensible or necessary, address this topic appropriately |

| Institution | Learning unit/Course | Learning outcome |
|-------------|-------------------------|--|
| UA | Communication skills | Student is able to have a sensitive, person-centered conversation with children of (seriously) ill caregivers / caregivers |
| UA | Communication skills | Student is able to appropriately address the suspicion of suicidality or third-party risk and refer patients if the suspicion is confirmed |
| UA | Communication skills | Student is able to provide or arrange grief counseling |
| UA | Communication skills | Student is able to address uncertainties towards colleagues and superiors and communicate them appropriately to patients and their caregivers according to their level of education. |
| UA | Communication skills | Student is able to make phone calls with patients or third parties |
| UA | Communication skills | Student is able to appropriately write different forms of patient reports / written communication. |
| UA | Communication skills | Student creates various forms of patient reports (admission protocol, short report, discharge report) in a structured and relevant form with all relevant examination results and suggestions for treatment planning |
| UA | Communication skills | Student is able to issue prescriptions. |
| UA | Communication skills | Student is able to issue death certificates |
| UA | Communication skills | Student is able to master and reflect the handling of medical information technologies. |
| UA | Communication skills | Student is able to retrieve patient-specific information from clinical information systems, as well as to know and apply the medical responsibility in the operation of these systems and procedures for the secure transmission and storage of patient data |
| UA | Communication skills | Student is able to request test, document findings, carry out medication prescriptions and write medical reports in an electronic patient record. |
| UA | Communication skills | Student uses telemedicine solutions in a patient-oriented manner and explain the general conditions of the health issue |
| UA | Communication skills | Student is able to master and reflect appropriate communication with media representatives and in public. |
| UA | Communication skills | Student is able to pass medical information on to the public and / or the media appropriately. |
| UA | Communication skills | Student demonstrates the communicative and cooperative dimension and non-technical skills of emergency medicine. |
| UA | Communication skills | Student explains and reflects key terms, models and variables of health and illness as well as prevention and health promotion and applies them. |
| UA | Communication skills | Student is able to reflect on cultural, socio-economic and gender-related aspects of health and illness and integrates them into their own actions. |
| UA | Communication skills | Student explains the need for gender-sensitive approaches to health promotion, prevention and appropriate communication. |
| UA | Communication skills | Student explains, reflects and advises on disease and target group-specific measures of prevention and health promotion and takes individual aspects and participation into account. |
| UA | Communication skills | Student is able to reflect and explain measures and contents of preventive and early detection examinations and carries them out under aspects of risk communication. |
| UA | Communication skills | Student knows, explains and communicates target group-specific measures for health promotion and prevention for children and adolescents. |
| UA | Communication skills | Student explains the importance of active sensory perception for the child's physical, psychological and linguistic development. |
| UJ | Anatomy with embryology | Student knows topographic relations between particular organs |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UJ | Anatomy with embryology | Student is able to use of spoken and written anatomical, histological and embryological nomenclature |
| UJ | Anatomy with embryology | Student is able to use objective sources of information |
| UJ | Anatomy with embryology | Student is able to implement of the principles of professional camaraderie and cooperation in a team of specialists, including representatives of other medical professions, also in a multicultural and multinational environment |
| UJ | Anatomy with embryology | Student is able to infer the relationships between anatomical structures based on in vivo diagnostic tests, in particular in the field of radiology (X-rays, tests using contrast media, computed tomography and nuclear magnetic resonance imaging) |
| UJ | Anatomy with embryology | Student is able to formulate opinions on various aspects of professional activity |
| UJ | Anatomy with embryology | Student is able to explain the anatomical basis of physical examination |
| UJ | Anatomy with embryology | Student knows development, structure and functions of the human body in physiological and pathological conditions. |
| UJ | Anatomy with embryology | Student knows human body structure in a topographic approach (upper and lower limbs, chest, abdomen, pelvis, back, neck, head) and functional (bone and joint system, muscular system, circulatory system, respiratory system, digestive system, urinary system, genital systems, nervous system and sense organs, integument) |
| UJ | Anatomy with embryology | Student knows stages of development of the human embryo, structure and function of the fetal membranes and placenta, stages of development of individual organs and the impact of harmful factors on the development of the embryo and fetus (teratogenic) |
| UJ | Anatomy with embryology | Student is able to take the responsibility related to decisions taken as part of professional activities, including terms of self and other people's safety |
| UJ | Anatomy with embryology | Student is able to perceive and recognize one's own limitations and self-assessing educational deficits and needs |
| UJ | Anatomy with embryology | Student knows anatomical, histological and embryological nomenclature in Polish and English |
| UMF | I.15. Regional, applied and clinical anatomy of the trunk | Student describes projections and dissecting the walls of the trunk |
| UMF | I.15. Regional, applied and clinical anatomy of the trunk | Student describes the projections of the weak spots of the abdominal wall |
| UMF | I.16. Developmental anatomy: principles, gametogenesis | Student identifies the main stages that take place within ovogenesis |
| UMF | I.15. Regional, applied and clinical anatomy of the trunk | Student identifies the main anatomotopographic regions of the trunk |
| UMF | I.16. Developmental anatomy: principles, gametogenesis | Student identifies the main stages that take place within the spermatogenesis |
| UMF | III. 11. The venous system of head and neck | Student explains Vein projections and findings at head level |
| UMF | III. 12. The lymphatic system of head and neck | Student explains lymphatic drainage of head and neck viscera |
| UMF | I.16. Developmental anatomy: principles, gametogenesis | Student identifies the main numerical and structural anomalies of the chromosomes |
| UMF | III. 9. The endocrine system at the neck and the lateral visceral lodges | Student explains the main components of the endocrine system at the neck |



| Institution | Learning unit/Course | Learning outcome |
|-------------|--|---|
| UMF | III. 10. Arterial system of head and neck | Student describes the main components of the arterial system of the head and neck |
| UMF | III. 12. The lymphatic system of head and neck | Student describes the main components of the lymphatic system of the head and neck |
| UMF | I.17. The first and second week of development (embryonic life) | Student describes the main anomalies that result from the disruption of the processes that take place during the first and second week. |
| UMF | IV. 5. Diencephalon | Student analyzes anatomical, sectional and imaging exploration of the diencephalon |
| UMF | IV. 6. Cerebral hemispheres | Student explains the circulation of the cerebrospinal fluid |
| UMF | IV. 7. The cavitory system of the encephalon and the cranial meninges | Student analyzes anatomical identification and exploration of the cranial meninges with the identification of prolongations and spaces |
| UMF | I.15. Regional, applied and clinical anatomy of the trunk | Student identifies projections and dissecting the walls of the trunk |
| UMF | III. 9. The endocrine system at the neck and the lateral visceral lodges | Student describes the main stages and processes involved in the morphogenesis of the endocrine system at the neck |
| UMF | III. 10. Arterial system of head and neck | Student identifies the main cranio-facial arterial anastomoses |
| UMF | III. 11. The venous system of head and neck | Student describes the main components of the venous system of the head and neck |
| UMF | I.17. The first and second week of development (embryonic life) | Student describes the main processes that take place during the first week of development |
| UMF | IV. 5. Diencephalon | Student is able to identify and describe the main nuclear groups at the diencephalon level |
| UMF | IV. 7. The cavitory system of the encephalon and the cranial meninges | Student explains the circulation of the cerebrospinal fluid |
| UMF | I.18. Third week of development (embryonic life) | Student identifies the main anomalies resulting from the disruption of the processes that take place during the third week |
| UMF | IV. 9. Optic system | Student analyzes anatomical identification and exploration of the main components of the visual system |
| UMF | I.19. Embryogenesis during week 4 to 8 and the fetal period. | Student identifies the main structures derived from the three germinal layers |
| UMF | I.19. Embryogenesis during week 4 to 8 and the fetal period. | Student identifies the main changes that occur during the fetal period |
| UMF | IV. 11. The gustatory system | Student analyzes anatomical identification and exploration of the main components of the taste system |
| UMF | IV. 14. The autonomous nervous system (ANS) | Student analyzes anatomical identification and exploration of the main components of the autonomic nervous system |
| UMF | III. 4. The muscular-fascial system of the head and neck | Student describes the main muscle groups at the level of the head and neck |
| UMF | III. 4. The muscular-fascial system of the head and neck | Student identifies the main muscle groups at the level of the head and neck |
| UMF | III. 3. The cranium- general description; head and neck joints | Student identifies the main pits and cavities in the skull |
| UMF | III. 3. The cranium- general description; head and neck joints | Student describes the appearance of the skull in general according to the norms of the skull |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--|---|
| UMF | III. 3. The cranium- general description; head and neck joints | Student identifies the main structures of resistance of the skull and explanation of the fracture path at this level |
| UMF | I.11 The innervation of the lower limb | Student identifies the branches of the lumbar plexus |
| UMF | I.11 The innervation of the lower limb | Student identifies the branches of the sacral plexus |
| UMF | I.12 Lower limb vascularization | Student identifies the main arteries of the lower limb |
| UMF | I.12 Lower limb vascularization | Student identifies the main veins of the lower limb |
| UMF | I.12 Lower limb vascularization | Student explains the lymphatic drainage of the lower limb |
| UMF | I.12 Lower limb vascularization | Student is able to check the arterial pulse in the lower limb |
| UMF | I.13. Regional, applied and clinical anatomy of the upper limb | Student identifies the main anatomotopographic regions of the upper limb |
| UMF | I.13. Regional, applied and clinical anatomy of the upper limb | Student describes the neurovascular projections and dissections in the upper limbs |
| UMF | III. 6. The pharyngeal apparatus | Student identifies the main stages and processes involved in the development of the pharyngeal system |
| UMF | III. 6. The pharyngeal apparatus | Student identifies pharyngeal device derivatives |
| UMF | III. 6. The pharyngeal apparatus | Student identifies the main anomalies that result from the disruption of the processes involved in the development of the pharyngeal system |
| UMF | I.14. The regional, applied and clinical anatomy of the lower limb | Student identifies the main anatomotopographic regions of the lower limb |
| UMF | III. 7. The superior respiratory system (SRS) | Student identifies the main stages and processes involved in the development of the upper respiratory system |
| UMF | III. 7. The superior respiratory system (SRS) | Student describes the main components of the upper respiratory system |
| UMF | III. 8. Superior digestive system | Student identifies the main stages and processes involved in the development of the upper digestive system |
| UMF | III. 8. Superior digestive system | Student describes the main components of the upper digestive system |
| UMF | I.14. The regional, applied and clinical anatomy of the lower limb | Student describes the neurovascular projections and dissections in the lower limbs |
| UMF | III. 9. The endocrine system at the neck and the lateral visceral lodges | Student identifies the lateral visceral lodges of the neck |
| UMF | III. 10. Arterial system of head and neck | Student explains Vascular projections and findings at head level |
| UMF | III. 11. The venous system of head and neck | Student identifies the main cranio-facial venous anastomoses |
| UMF | I.17. The first and second week of development (embryonic life) | Student describes the main processes that take place during the second week of development |
| UMF | IV. 6. Cerebral hemispheres | Student analyzes anatomical, sectional and imaging exploration of the cerebral hemispheres |



| Institution | Learning unit/Course | Learning outcome |
|-------------|---|--|
| UMF | IV. 8. Cerebral vascular system | Student analyzes anatomical identification and exploration of the main components of the vascular system of the brain |
| UMF | I.18. Third week of development (embryonic life) | Student identifies the main processes that take place during the third week of development |
| UMF | I.19. Embryogenesis during week 4 to 8 and the fetal period. | Student explains the processes of craniocaudal and laterolateral folding |
| UMF | I.19. Embryogenesis during week 4 to 8 and the fetal period. | Student describes the main anomalies that result from the disruption of the processes that occur during weeks 4 to 8 and during the fetal period |
| UMF | I.20. Morphofunctional dynamics of the embryo-fetal attachments | Student identifies the main embryo-fetal attachments and explaining their role |
| UMF | IV. 10. The acoustic-vestibular system | Student analyzes anatomical identification and exploration of the main components of the acoustic-vestibular |
| UMF | I.20. Morphofunctional dynamics of the embryo-fetal attachments | Student identifies the main anomalies resulting from the disturbance of the morpho-functional dynamics of the embryo-fetal attachments. |
| UMF | IV. 12. The olfactory system | Student analyzes anatomical identification and exploration of the main components of the olfactory system |
| UMF | IV. 13. The motor systems | Student analyzes anatomical identification and exploration of the main components of the motor systems |
| UMF | I.1. The skeleton of the trunk | Student identifies Being able to anatomically explore the spine; identifying general, regional and particular characters of the vertebrae |
| UMF | I.1. The skeleton of the trunk | Student analyzes Acquiring the skill of counting vertebrae |
| UMF | I.1. The skeleton of the trunk | Student is able to Anatomically explore the rib cage; identifying the general and particular characters of the ribs; the description of the sternum. |
| UMF | I.1. The skeleton of the trunk | Student applies The skill of counting the ribs |
| UMF | I.2. The skeleton of upper limb | Student analyzes Anatomical and imagistic exploration of the bones of the free upper limb and of the upper limb belt |
| UMF | I.3. The joints of the upper limb | Student identifies The anatomical details of the joints of the free upper limb and of the upper limb belt |
| UMF | I.3. The joints of the upper limb | Student analyzes Anatomical and imagistic exploration of the joints of the free upper limb and of the upper limb belt |
| UMF | I.4. The skeleton of the lower limb | Student identifies The anatomical details of the bones forming the lower limb belt and the free lower limb. |
| UMF | I.4. The skeleton of the lower limb | Student analyzes Anatomical and imagistic exploration of the lower limb belt and of the bones of the free lower limb |
| UMF | I.5. The joints of the lower limb | Student identifies The anatomical details of the joints of the lower limb belt and of the free lower limb. |
| UMF | I.5. The joints of the lower limb | Student analyzes Anatomical and imagistic exploration of the joints of the free lower limb and of the lower limb belt |
| UMF | I.10. Upper limb vascularization | Student is able to anatomically explore and identify the main arteries of the upper limb |
| UMF | I.10. Upper limb vascularization | Student is able to anatomically explore and identify the main veins of the upper limb |
| UMF | I.10. Upper limb vascularization | Student is able to anatomically explore and explain the lymphatic drainage of the upper limb |
| UMF | I.10. Upper limb vascularization | Student is able to Check the arterial pulse in the upper limb |
| UMF | 1. Intracranial hypertension syndrome | Student names the clinical symptoms of ICH |
| UMF | 1. Intracranial hypertension syndrome | Student names Cushing triad |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---------------------------------------|---|
| UMF | 1. Intracranial hypertension syndrome | Student explains the physiology of intracranial pressure |
| UMF | 1. Intracranial hypertension syndrome | Student explains cerebral herniation |
| UMF | 1. Intracranial hypertension syndrome | Student applies ICH principles to particular clinical case |
| UMF | 1. Intracranial hypertension syndrome | Student is able to answer 3 questions |
| UMF | 2. Hydrocephalus | Student names the anatomy of the cerebral ventricular system |
| UMF | 2. Hydrocephalus | Student explains the physiology of CSF circulation |
| UMF | 2. Hydrocephalus | Student names the causes and the clinical symptoms of hydrocephalus |
| UMF | 2. Hydrocephalus | Student describes the Hakim-Adams triad |
| UMF | 2. Hydrocephalus | Student names the treatment options for hydrocephalus |
| UMF | 3. Intracranial expansive processes | Student names the types of intracranial expansive processes |
| UMF | 3. Intracranial expansive processes | Student names the clinical symptoms of expansive processes based on their localisation |
| UMF | 3. Intracranial expansive processes | Student explains the brain-expansive process interaction |
| UMF | 3. Intracranial expansive processes | Student names the principles of treatment |
| UMF | 3. Intracranial expansive processes | Student explains the types of cerebral tumors based on their nature and localization |
| UMF | 3. Intracranial expansive processes | Student names the therapeutic possibilities in cerebral tumors |
| UMF | 3. Intracranial expansive processes | Student names the types of intracranial expansive processes other than tumors |
| UMF | 3. Intracranial expansive processes | Student formulates a clinical case based on the type of cerebral tumor and its localization |
| UMF | 4. Alteration of consciousness | Student explains the physiology of consciousness |
| UMF | 4. Alteration of consciousness | Student names the causes of consciousness loss |
| UMF | 4. Alteration of consciousness | Student names the phases of consciousness loss and defines coma |
| UMF | 4. Alteration of consciousness | Student explains the clinical and topographical diagnosis |
| UMF | 4. Alteration of consciousness | Student names the elements of Glasgow Coma Scale |
| UMF | 4. Alteration of consciousness | Student explains the clinical examination of the comatous patient |
| UMF | 4. Alteration of consciousness | Student applies notions in differentiating between various causes of consciousness loss |
| UMF | 4. Alteration of consciousness | Student names the diagnostic criteria for brain death |
| UMF | 5. Head trauma | Student explains the particularities of brain/skull interaction physics in head impact |
| UMF | 5. Head trauma | Student names the types of brain lesions that can be produced by trauma |
| UMF | 5. Head trauma | Student classifies the cranio-cerebral trauma based on GCS and ames the follow-up criteria |
| UMF | 5. Head trauma | Student names the particularities of cranial fractures |
| UMF | 5. Head trauma | Student names the particularities of diffuse axonal lesions |
| UMF | 5. Head trauma | Student names the particularities of dilaceration |



| Institution | Learning unit/Course | Learning outcome |
|-------------|---|---|
| UMF | 5. Head trauma | Student names the particularities of subdural hematoma |
| UMF | 5. Head trauma | Student names the particularities of extradural hematoma |
| UMF | 5. Head trauma | Student explains the imaging aspects in cranio-cerebral trauma |
| UMF | 5. Head trauma | Student explains the particularities of polytrauma involving brain trauma |
| UMF | 5. Head trauma | Student explains brain trauma guidelines (pre-ICU, adults, children) |
| UMF | 5. Head trauma | Student is able to answer 3 questions |
| UMF | 6. Neurosurgical vascular emergencies | Student names the anatomy of intracranial vasculature |
| UMF | 6. Neurosurgical vascular emergencies | Student names the particularities of brain vascularization physiology |
| UMF | 6. Neurosurgical vascular emergencies | Student names the etiology of spontaneous intracranial/intracerebral hemorrhage |
| UMF | 6. Neurosurgical vascular emergencies | Student names the clinical symptoms and imaging aspects of subarachnoid hemorrhage |
| UMF | 6. Neurosurgical vascular emergencies | Student explains the imaging of spontaneous intracranial/intracerebral hemorrhage |
| UMF | 6. Neurosurgical vascular emergencies | Student describes attitude in the face of a subarachnoid hemorrhage |
| UMF | 6. Neurosurgical vascular emergencies | Student names the treatment options for hydrocephalus |
| UMF | 6. Neurosurgical vascular emergencies | Student describes clinical and imaging aspects in ischemic cerebral diseases |
| UMF | 6. Neurosurgical vascular emergencies | Student knows the principles of medical thrombolysis, mechanical thrombectomy, and surgical treatment in ischemic brain disease |
| UMF | 7. Radicular and medular compression syndrome | Student names the causes for radicular and medular compression |
| UMF | 7. Radicular and medular compression syndrome | Student names the particularities of EPS syndrome |
| UMF | 7. Radicular and medular compression syndrome | Student names the particularities of IPS syndrome |
| UMF | 7. Radicular and medular compression syndrome | Student explains imaging aspects in medular and radicular compression |
| UMF | 7. Radicular and medular compression syndrome | Student explains the principles of radicular compression syndrome management |
| UMF | 7. Radicular and medular compression syndrome | Student is able to answer 3 questions |
| UMF | 8. Vertebral instability syndrome | Student explains the biomechanics of the spine |
| UMF | 8. Vertebral instability syndrome | Student describes the clinical picture of vertebral instability |
| UMF | 8. Vertebral instability syndrome | Student describes imaging aspects in vertebral instability |
| UMF | 8. Vertebral instability syndrome | Student describes the principles of vertebral instability treatment |
| UMF | 9. Vertebro-medular trauma | Student names the stages of spine involvement of trauma |
| UMF | 9. Vertebro-medular trauma | Student names the types of spine fractures |
| UMF | 9. Vertebro-medular trauma | Student explains the physiology of spinal cord in trauma |
| UMF | 9. Vertebro-medular trauma | Student describes imaging aspects in vertebro-medular trauma |
| UMF | 9. Vertebro-medular trauma | Student names therapeutic possibilities in various types of vertebro-medular trauma |
| UMF | 9. Vertebro-medular trauma | Student constructs 3 clinical cases with vertebro-medular trauma localized at various levels within the spine |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UMF | 10. Discopathy and disk herniation | Student describes the anatomy of disk/bony landmarks/nerve root complex |
| UMF | 10. Discopathy and disk herniation | Student names the clinical picture of disk herniation |
| UMF | 10. Discopathy and disk herniation | Student names the phases of discopathy |
| UMF | 10. Discopathy and disk herniation | Student describes imaging aspects in spinal degenerative diseases |
| UMF | 10. Discopathy and disk herniation | Student names the surgical indication in disk herniation |
| UMF | 10. Discopathy and disk herniation | Student applies notions to a case of disk herniation |
| UMF | 11. Neurosurgical clinical exam | Student names the stages of neurologic clinical exam |
| UMF | 11. Neurosurgical clinical exam | Student names the central nervous system structures that need to be evaluated in the exam |
| UMF | 11. Neurosurgical clinical exam | Student knows neurosurgical semiology |
| UMF | 11. Neurosurgical clinical exam | Student applies knowledge to a real neurosurgical case |
| UMF | 11. Neurosurgical clinical exam | Student characterizes the particularities of history taking and narrative medicine in neurosurgery |
| UMF | 12. Basic imaging of the head and spine | Student knows the basic physics and indication of imaging modalities (CT, MRI) |
| UMF | 12. Basic imaging of the head and spine | Student names basic image characteristics for CT |
| UMF | 12. Basic imaging of the head and spine | Student names basic image characteristics for essential MRI modalities (T1, T2, FLAIR, contrast) |
| UMF | 12. Basic imaging of the head and spine | Student applies knowledge to real cases images |
| UMF | I.6. Upper limb muscles | Student identifies The anatomical details of the musculofascial complexes of the upper limb belt. |
| UMF | I.6. Upper limb muscles | Student identifies The anatomical details of the musculofascial complexes of the free upper limb. |
| UMF | I.21. Growth and development of the locomotor system of the limbs and of the vertebral segment of the axial organ. | Student identifies the main stages and processes involved in the development of the limbs and spine |
| UMF | I.21. Growth and development of the locomotor system of the limbs and of the vertebral segment of the axial organ. | Student identifies the main anomalies that result from the disruption of the processes involved in the development of the limbs and spine. |
| UMF | I.7. The muscles of the lower limb | Student identifies The anatomical details of the musculofascial complexes of the lower limb belt |
| UMF | I.7. The muscles of the lower limb | Student identifies The anatomical details of the musculofascial complexes of the free lower limb |
| UMF | I.8. Torso muscles | Student identifies The anatomical details of the musculofascial complexes of the back |
| UMF | I.8. Torso muscles | Student identifies The anatomical details of the musculofascial complexes of the thorax |
| UMF | I.8. Torso muscles | Student identifies The anatomical details of the complex muscles of the abdomen |
| UMF | I.8. Torso muscles | Student identifies The diaphragm's hiatus and groin canal structures |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|---|
| UMF | I.9. Innervation of the upper limb | Student is able to anatomically explore and identify the trunks, cords and branches of the brachial plexus |
| UMF | III.1. Neurocranium | Student identifies the main stages and processes involved in the development of the neurocranium system |
| UMF | III.1. Neurocranium | Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the neurocranium |
| UMF | III.1. Neurocranium | Student masters Anatomical exploration and identification of the bones that make up the neurocranium |
| UMF | III.2. Viscerocranium | Student identifies the main stages and processes involved in the development of viscerocranium |
| UMF | III.2. Viscerocranium | Student identifies of the main anomalies resulting from the disruption of the processes involved in the development of viscerocranium |
| UMF | III.2. Viscerocranium | Student masters Anatomical exploration and identification of the bones that make up the viscerocranium |
| UMF | II.1. The respiratory system | Student identifies the main stages and processes involved in the development of the respiratory system |
| UMF | II.1. The respiratory system | Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the respiratory system |
| UMF | II.1. The respiratory system | Student knows the maneuvers required to explore the chest cavity, the serous compartments and their formations |
| UMF | II.1. The respiratory system | Student is able to Anatomically explore the organs of the respiratory system (both in situ and extracted from the body |
| UMF | II.1. The respiratory system | Student identifies the pleuro-pulmonary projection line on the chest wall |
| UMF | II.2. Cardio-vascular aparatus | Student identifies the main stages and processes involved in the development of the cardiovascular system |
| UMF | II.2. Cardio-vascular aparatus | Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the cardiovascular system |
| UMF | II.2. Cardio-vascular aparatus | Student is able to anatomically explore the organs that make up the cardio-vascular apparatus (both in situ and extracted from the body) |
| UMF | II.2. Cardio-vascular aparatus | Student identifies the pericardio-cardio-orificial projection lines on the chest wall |
| UMF | II.2. Cardio-vascular aparatus | Student knows the maneuvers needed for exposing the pericardial sinuses |
| UMF | II.2. Cardio-vascular aparatus | Student identifies the main auscultation areas and the apexian shock on the chest wall |
| UMF | III. 5. Principles of functional organization and conjunctival spaces at the level of the head and neck | Student describes the main conjunctival spaces at the level of the head and neck |
| UMF | II. 3. The digestive system: | Student identifies the projection lines of the organs of the digestive system on the thoracoabdominal wall |
| UMF | II. 3. The digestive system: | Student is able to Anatomically explore the organs that take part in forming the digestive system (in situ and extracted from the body) |
| UMF | II. 3. The digestive system: | Student practises the maneuvers to explore the peritoneal cavity, its compartments its serous formations |
| UMF | II. 3. The digestive system: | Student identifies the main anomalies that result from the disruption of the processes involved in the development of the digestive system |
| UMF | II. 3. The digestive system: | Student identifies the main stages and processes involved in the development of the digestive system |
| UMF | II. 4. The urinary system: | Student identifies the projection lines of the organs of the urinary system on the abdominal wall |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|---|
| UMF | II. 4. The urinary system: | Student is able to o Anatomically explore the organs that take part in forming the urinary system (both in situ and extracted from the body) |
| UMF | II. 4. The urinary system: | Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the urinary system |
| UMF | II. 4. The urinary system: | Student identifies the main stages and processes involved in the development of the urinary system |
| UMF | II. 5. The genital system:: | Student knows the skills necessary for the exploration of the pelvis, visceral lodges and their contents. Exploration of the pelvis subperitoneal space |
| UMF | II. 5. The genital system:: | Student is able to o Anatomically explore the organs that make up the genital system (both in situ and extracted from the body) |
| UMF | II. 5. The genital system:: | Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the genital system |
| UMF | II. 5. The genital system:: | Student identifies the main stages and processes involved in the development of the male and female genital system |
| UMF | II. 6. The nervous system (trunk level): | Student identifies the main components of the sympathetic paravertebral chain |
| UMF | II. 6. The nervous system (trunk level): | Student identifies the main nerve plexuses innervating the thoracic and abdominal-pelvic viscera |
| UMF | II. 7. Trunk endocrine system | Student identifies and explores the main components of the endocrine system (trunk level |
| UMF | III.13. Nerves of head and neck | Student explains the anatomical description and exploration of the main components of the cervical plexus and the cervical sympathetic trunk |
| UMF | III.13. Nerves of head and neck | Student explains the anatomical description and exploration of the cranial nerves |
| UMF | III.13. Nerves of head and neck | Student demonstrates nervous projections and discoveries in the head |
| UMF | III.14. Regional anatomy of the head | Student explains the anatomical description and exploration of the main anatomical topographic regions of the head |
| UMF | III.14. Regional anatomy of the head | Student demonstrates head projections and discoveries |
| UMF | III.15. Anatomical regions of the neck | Student explains the anatomical description and exploration of the main anatomical topographic regions of the neck |
| UMF | III.15. Anatomical regions of the neck | Student demonstrates throat projections and discoveries |
| UMF | IV.1. Morphogenesis and principles of the functional organization in the central nervous system | Student identifies the main stages and processes involved in the morphogenesis of the central nervous system |
| UMF | IV.1. Morphogenesis and principles of the functional organization in the central nervous system | Student identifies the main developmental abnormalities arising from the disturbance of the morphogenesis of the central nervous system |
| UMF | IV.1. Morphogenesis and principles of the functional organization in the central nervous system | Student explains the theories and levels of organization of the central nervous system |
| UMF | IV.2. The spinal cord | Student explains the anatomical, sectional and imaging exploration of the spinal cord |
| UMF | IV.2. The spinal cord | Student identifies the main neural stations of the posterior and anterolateral cord systems |
| UMF | IV.2. The spinal cord | Student identifies the prolongations and spaces of the spinal cord |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|--|
| UMF | IV.3. Brainstem | Student explains the anatomical, sectional and imaging exploration of the brainstem |
| UMF | IV.3. Brainstem | Student identifies the main nuclear groups in the brainstem |
| UMF | IV.4. Cerebellum | Student explains the anatomical, sectional and imagistic exploration of the cerebellum |
| UMF | IV.4. Cerebellum | Student identifies the main circuits in the cerebellum and describes them |
| UPJS | Clinically important regions of upper limb | Student names all regions of upper limb |
| UPJS | Upper limb from orthopedic point of view | Student distinguishes types of fractures in particular parts of upper limb |
| UPJS | Clinically important regions of upper limb | Student characterizes superficial and deep structures of upper limb |
| UPJS | Upper limb from orthopedic point of view | Student characterizes dislocations of particular parts of upper limb |
| UPJS | Pelvis borders, pelvic diameters, walls of pelvis | Student defines walls of pelvis |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student characterizes lines of orientation of thoracic borders |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student describes movement of the ribs and sternum during breathing |
| UPJS | Upper limb from orthopedic point of view | Student describes carpal tunnel syndrome |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student names layers of thoracic wall |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student names ligaments, joints and curvatures of vertebral column |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student distinguishes arteries and veins of the thoracic wall |
| UPJS | Thorax - borders. Thoracic wall. Diaphragm | Student characterizes function of diaphragm |
| UPJS | Mediastinum - division. Superior and inferior mediastinum | Student describes Mediastinum division |
| UPJS | Mediastinum - division. Superior and inferior mediastinum | Student characterizes function, innervation and blood supply of mediastinum structures |
| UPJS | Heart - external description | Student is able to explain systemic and pulmonary circulation |
| UPJS | Heart - external description | Student describes arteries and veins of human body |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student distinguishes atriums and ventricles of the heart |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student explains lymphatic drainage of the heart |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student distinguishes auscultation sites |
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student describes anatomical structures of lower respiratory tract |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--|---|
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student explains blood supply, innervation and function of particular parts of respiratory system |
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student describes clinical tips of respiratory obstruction |
| UPJS | Repetition of anatomical structures of thorax | Student names layers of thoracic wall |
| UPJS | Urinary system. Adrenal (suprarenal) glands | Student describes structure and function of nephron |
| UPJS | Urinary system. Adrenal (suprarenal) glands | Student describes transplantation of kidney |
| UPJS | Autonomic nervous system | Student describes sympathetic and parasympathetic part of autonomic nervous system |
| UPJS | Male genital organs | Student distinguishes internal and external male genital organs |
| UPJS | Female genital organs | Student distinguishes internal and external female genital organs |
| UPJS | Endocrine system and skin | Student defines parts of skin |
| UPJS | Endocrine system and skin | Student describes appendages of skin |
| UPJS | Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs | Student names bones, borders, organs and diaphragms of pelvic floor |
| UPJS | Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs | Student defines branches of internal iliac artery |
| UPJS | Repetition of pelvic and abdominal anatomical structures | Student interprets knowledge of pelvic anatomical structures |
| UPJS | Skull - neurocranium, cervical vertebrae and their joints | Student describes function of cervical vertebrae joints |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord | Student describes function of reticular formation in medulla oblongata |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord | Student describes anatomical structure of medulla oblongata, pon and fossa rhomboidea |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord | Student defines parts and development of Rhomboid fossa |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord | Student describes function of reticular formation |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord | Student characterizes nervous tracts of brainstem |
| UPJS | Medulla oblongata, pons, rhomboid fossa - external | Student describes external features and internal structure of pons |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|---|
| | and internal description, tracts of spinal cord | |
| UPJS | Nerve tracts " overview | Student characterizes different types of nerve tracts |
| UPJS | Organs of hearing | Student characterizes layers of auditory and vestibular apparatus |
| UPJS | Organs of hearing | Student explains function of auditory organs |
| UPJS | Organs of hearing | Student describes blood supply and innervation of auditory and vestibular apparatus |
| UPJS | Organs of hearing | Student describes auditory pathway |
| UPJS | Organs of hearing | Student describes vestibular pathway |
| UPJS | Pelvis borders, pelvic diameters, walls of pelvis | Student analyses gender differences of pelvis |
| UPJS | Thorax " borders. Thoracic wall. Diaphragm | Student describes joints of the ribs |
| UPJS | Thorax " borders. Thoracic wall. Diaphragm | Student distinguishes deep, middle and superficial layers of thoracic wall |
| UPJS | Thorax " borders. Thoracic wall. Diaphragm | Student characterizes function, blood supply, innervation and lymph drainage of mammary gland |
| UPJS | Mediastinum - division. Superior and inferior mediastinum | Student distinguishes superior and inferior mediastinum |
| UPJS | Mediastinum - division. Superior and inferior mediastinum | Student describes function of sympathetic trunk, autonomic nervous system, thoracic ganglia |
| UPJS | Heart - external description | Student categorizes components of Pericardium |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student defines layers of the heart wall |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student names valves of the heart |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student explains cardiac conduction system |
| UPJS | Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves | Student describes blood supply and innervation of the heart |
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student describes anatomical structures of upper respiratory tract |
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student names cartilages, ligaments and cavities of respiratory system |
| UPJS | Respiratory system. Upper and lower respiratory tract, lungs, pleura | Student explains borders of lung and pleura |
| UPJS | Repetition of anatomical structures of thorax | Student characterizes lines of orientation of thoracic borders |
| UPJS | Repetition of anatomical structures of thorax | Student distinguishes deep, middle and superficial layers of thoracic wall |

| Institution | Learning unit/Course | Learning outcome |
|-------------|--|---|
| UPJS | Urinary system. Adrenal (suprarenal) glands | Student describes organs of urinary system and their structure and function |
| UPJS | Urinary system. Adrenal (suprarenal) glands | Student names muscles of urinary bladder and urethra |
| UPJS | Urinary system. Adrenal (suprarenal) glands | Student describes blood supply and innervation of urinary system organs |
| UPJS | Autonomic nervous system | Student describes function of autonomic nervous system |
| UPJS | Autonomic nervous system | Student is able to name and describe function the most important autonomic plexuses of the body |
| UPJS | Male genital organs | Student describes organs of male genital system and their structure and function |
| UPJS | Female genital organs | Student describes organs of female genital system and their structure and function |
| UPJS | Endocrine system and skin | Student describes glands of endocrine system and their anatomical structure and function |
| UPJS | Endocrine system and skin | Student defines types of hair |
| UPJS | Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs | Student describes blood supply and innervation of pelvic floor organs |
| UPJS | Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs | Student describes blood supply and lymphatic drainage of rectum |
| UPJS | Repetition of pelvic and abdominal anatomical structures | Student discusses about abdominal anatomical structures |
| UPJS | Repetition of pelvic and abdominal anatomical structures | Student is able to practise their skills |
| UPJS | Skull - neurocranium, cervical vertebrae and their joints | Student names and describes cervical vertebrae |
| UPJS | Skull - neurocranium, cervical vertebrae and their joints | Student names and describe neurocranium bones |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student names bones of skull |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student names spaces of skull |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student describes ossification of cranial bones |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student describes deformities and sutures of skull |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student describes function of temporomandibular joint |
| UPJS | Skull - splanchnocranium and neurocranium, skull cavities | Student names ligaments, movements, blood supply and innervation of temporomandibular joint |
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student describes types of muscles of the head |
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student describes function of particular muscles of the head |



| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student characterizes paralysis of facial muscles |
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student names muscles of the neck |
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student describes function of particular muscles of the neck |
| UPJS | Muscles of head and neck, arterial blood supply of head and neck | Student describes arterial blood supply of the head and the neck |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student describes parts of subclavian artery |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student characterizes arterial anastomoses of the neck |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student describes venous drainage of the neck |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student distinguishes types of cranial tributaries and know their names |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student characterizes venous anastomoses of the neck |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student describes lymphatic drainage of the head and the neck |
| UPJS | Venous and lymphatic drainage of head and neck. Cranial nerves "overview" | Student describes cranial nerves and axons |
| UPJS | Innervation of the head and neck, cranial nerves, cervical plexus, ANS. | Student describes sensory, motor and autonomic nerves of the head and the neck |
| UPJS | Innervation of the head and neck, cranial nerves, cervical plexus, ANS. | Student names spinal cervical nerves and their function |
| UPJS | Innervation of the head and neck, cranial nerves, cervical plexus, ANS. | Student names cranial nerves and their function |
| UPJS | Innervation of the head and neck, cranial nerves, cervical plexus, ANS. | Student describes innervation of tongue |
| UPJS | Regional anatomy and clinically important regions of head, parasympathetic ganglia | Student characterizes parotidomasseteric region |
| UPJS | Regional anatomy and clinically important regions of head, parasympathetic ganglia | Student describes lines and compartments of orbital cavity |
| UPJS | Regional anatomy and clinically important regions | Student defines blood supply and innervation of nasal cavity |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|--|
| | of head, parasympathetic ganglia | |
| UPJS | Regional anatomy and clinically important regions of head, parasympathetic ganglia | Student defines parasympathetic system and ganglions |
| UPJS | Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck | Student characterizes function of cranial nerves VIII.-XII |
| UPJS | Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck | Student characterizes function of cervical plexus |
| UPJS | Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck | Student characterizes function of sympathetic trunk |
| UPJS | Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck | Student describes regional anatomy of head and neck |
| UPJS | Subclavian a. and innervation of head and neck - cranial nerves I.-VII. | Student characterizes function of subclavian a. |
| UPJS | Subclavian a. and innervation of head and neck - cranial nerves I.-VII. | Student characterizes function of cranial nerves I.-VII. |
| UPJS | Regional anatomy and clinically important regions of the neck | Student defines borders of the neck |
| UPJS | Regional anatomy and clinically important regions of the neck | Student describes palpable and visible structures of the neck |
| UPJS | Regional anatomy and clinically important regions of the neck | Student defines regions of the neck |
| UPJS | Regional anatomy and clinically important regions of the neck | Student names organs of the neck and describe their function |
| UPJS | Repetition of anatomical structures of the head and the neck | Student characterizes anatomical structures of the neck |
| UPJS | Repetition of anatomical structures of the head and the neck | Student characterizes anatomical structures of the head |
| UPJS | Division of CNS, spinal cord | Student classifies central nervous system and function |
| UPJS | Division of CNS, spinal cord | Student describes anatomical structure and function of neuron |
| UPJS | Division of CNS, spinal cord | Student describes division of brain |
| UPJS | Division of CNS, spinal cord | Student describes distribution of white and grey matter |
| UPJS | Division of CNS, spinal cord | Student characterizes anatomical structure and function of spinal cord |
| UPJS | Midbrain (brain stem) and nerve tracts | Student characterizes nervous tracts of brainstem |



| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UPJS | Midbrain (brain stem) and nerve tracts | Student characterizes borders of midbrain |
| UPJS | Midbrain (brain stem) and nerve tracts | Student characterizes division of midbrain |
| UPJS | Midbrain (brain stem) and nerve tracts | Student characterizes internal structure of tectum, cerebral crus and tegmentum mesencephali |
| UPJS | Reticular formation | Student describes function of reticular formation |
| UPJS | Reticular formation | Student distinguishes the division of reticular formation |
| UPJS | Reticular formation | Student describes efferent connections from reticular formation |
| UPJS | Cerebellum and its connections | Student describes function of cerebellum |
| UPJS | Cerebellum and its connections | Student characterizes morphological division of cerebellum |
| UPJS | Cerebellum and its connections | Student defines tracts of cerebellum |
| UPJS | Cerebellum and its connections | Student is able to describe functional anatomy of cerebellum |
| UPJS | Diencephalon - external and internal structure. Basal ganglia - nerve tracts | Student describes function of diencephalon |
| UPJS | Diencephalon - external and internal structure. Basal ganglia - nerve tracts | Student characterizes main divisions of diencephalon |
| UPJS | Diencephalon - external and internal structure. Basal ganglia - nerve tracts | Student describes external and internal structure of diencephalon |
| UPJS | Diencephalon - external and internal structure. Basal ganglia - nerve tracts | Student defines anatomical classification of basal ganglia |
| UPJS | Diencephalon - external and internal structure. Basal ganglia - nerve tracts | Student names disorders of basal ganglia |
| UPJS | Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts | Student characterizes parts of telencephalon |
| UPJS | Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts | Student defines functional cortical areas of telencephalon |
| UPJS | Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts | Student describes olfactory system |
| UPJS | Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts | Student describes limbic system |
| UPJS | Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts | Student defines deep structures and white matter of telencephalon |
| UPJS | Organs of vision | Student describes anatomical structure and layers of eyeball |
| UPJS | Organs of vision | Student names and describe function of accessory organs of eye |



| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UPJS | Organs of vision | Student is able to characterize strabismus |
| UPJS | Organs of vision | Student explains blood supply and innervation of orbit |
| UPJS | Organs of vision | Student describes visual pathway |
| UPJS | Skeleton of upper limb | Student distinguishes cardinal planes |
| UPJS | Skeleton of upper limb | Student is able to name the parts of upper limb |
| UPJS | Skeleton of upper limb | Student masters range of motion in particular joints of upper limb |
| UPJS | Arterial blood supply of lower limb | Student is able to distinguish lower limb arteries |
| UPJS | Arterial blood supply of lower limb | Student characterizes venous drainage of the lower limb |
| UPJS | Arterial blood supply of lower limb | Student characterizes lymphatic drainage of the lower limb |
| UPJS | Arterial blood supply, venous and lymphatic drainage of upper limb | Student defines superficial and deep palmar arch |
| UPJS | Arterial blood supply, venous and lymphatic drainage of upper limb | Student explains relationship between Brachial a. and another structures |
| UPJS | Arterial blood supply, venous and lymphatic drainage of upper limb | Student names lymph vessels of upper limb |
| UPJS | Brachial plexus and sensory innervation of upper limb | Student defines myotome |
| UPJS | Brachial plexus and sensory innervation of upper limb | Student analyses function of Branchial plexus |
| UPJS | Brachial plexus and sensory innervation of upper limb | Student defines dermatome |
| UPJS | Brachial plexus and sensory innervation of upper limb | Student names nerves of Branchial plexus |
| UPJS | Connections of bones in general | Student characterizes connection of bones |
| UPJS | Connections of bones in general | Student classifies joints |
| UPJS | Connections of bones in general | Student is able to use terminology |
| UPJS | Introduction to anatomy | Student is able to use anatomical nomenclature |
| UPJS | Introduction to anatomy | Student distinguishes cardinal planes |
| UPJS | Introduction to anatomy | Student describes anatomic location and directions |
| UPJS | Introduction to digestive system | Student defines anatomical structures of oral cavity |
| UPJS | Introduction to digestive system | Student distinguishes types of teeth |
| UPJS | Joints of lower limb | Student classifies all connection of lower limb |
| UPJS | Joints of lower limb | Student describes joint of pelvic girdle and joints free lower limb |
| UPJS | Joints of lower limb | Student formulates function of lower limb and ligaments |
| UPJS | Joints of upper limb | Student classifies joints |
| UPJS | Joints of upper limb | Student knows function of ligaments |
| UPJS | Joints of upper limb | Student knows function of joints |
| UPJS | Lower limb from orthopedic point of view | Student describes compartment syndrome |
| UPJS | Lower limb from orthopedic point of view | Student characterizes dislocations of particular parts of lower limb |



| Institution | Learning unit/Course | Learning outcome |
|-------------|--|--|
| UPJS | Lower limb from orthopedic point of view | Student distinguishes types of fractures in lower limb extremity |
| UPJS | Digestive system | Student characterizes organs of digestive system |
| UPJS | Digestive system | Student defines anatomical structures of digestive system |
| UPJS | Digestive system | Student describes blood supply and innervation of particular parts of digestive system |
| UPJS | Lumbar and sacral plexus, sensory innervation of lower limb | Student analyses function of Lumbar and Sacral plexus |
| UPJS | Lumbar and sacral plexus, sensory innervation of lower limb | Student names nerves of Lumbar and Sacral plexus |
| UPJS | Lumbar and sacral plexus, sensory innervation of lower limb | Student describes sensory and motor innervation of Lower Limb |
| UPJS | Muscles in general | Student characterizes types of muscles |
| UPJS | Muscles in general | Student describes function of motor unit |
| UPJS | Muscles in general | Student describes structure of muscle |
| UPJS | Muscles in general | Student describes structure of tendon |
| UPJS | Muscles of lower limb | Student distinguishes fascias and muscles of lower limb |
| UPJS | Muscles of lower limb | Student names fascias and muscles of lower limb |
| UPJS | Muscles of lower limb | Student characterizes types of movement |
| UPJS | Muscles of lower limb | Student describes function and innervation of lower limb |
| UPJS | Muscles of upper limb | Student distinguishes muscles of upper limb |
| UPJS | Muscles of upper limb | Student identifies nerves of muscles |
| UPJS | Muscles of upper limb | Student describes function of rotator cuff |
| UPJS | Nervous system in general | Student characterizes central and peripheral nervous system |
| UPJS | Nervous system in general | Student defines branches of spinal nerve |
| UPJS | Nervous system in general | Student describes the structure of spinal nerve |
| UPJS | Regional anatomy of lower limb | Student defines visible structures of lower limb |
| UPJS | Regional anatomy of lower limb | Student defines palpable structures of lower limb |
| UPJS | Regional anatomy of lower limb | Student names spaces of lower limb |
| UPJS | Regional anatomy of upper limb | Student analyses surface anatomy |
| UPJS | Regional anatomy of upper limb | Student identifies visible structures of upper limb |
| UPJS | Regional anatomy of upper limb | Student determines palpable structures of upper limb |
| UPJS | Regional anatomy of upper limb | Student distinguishes spaces of upper limb |
| UPJS | Repetition of anatomical structures of lower limb and pelvis | Student defines anatomical structures of lower limb |
| UPJS | Repetition of anatomical structures of lower limb and pelvis | Student describes function of lower limb structures |
| UPJS | Repetition of anatomical structures of lower limb and pelvis | Student describes innervation of lower limb structures |

| Institution | Learning unit/Course | Learning outcome |
|-------------|---|--|
| UPJS | Repetition of structures of upper limb | Student defines structures of upper limb |
| UPJS | Repetition of structures of upper limb | Student describes function of upper limb structures |
| UPJS | Repetition of structures of upper limb | Student describes innervation of upper limb structures |
| UPJS | Skeleton of lower limb | Student describes surface anatomy of lower limb |
| UPJS | Skeleton of lower limb | Student distinguishes bones of pelvic girdle, bones of free lower limb and bones of foot |
| UPJS | Skeleton of lower limb | Student knows function of lower limb |
| UPJS | Vascular system in general | Student knows difference between artery and vein |
| UPJS | Vascular system in general | Student describes systemic and pulmonary circulation |
| UPJS | Vascular system in general | Student identifies inner, middle and outer layer of vessels |
| UPJS | Abdominal wall. Inguinal canal. Peritoneum. Spleen | Student defines groups of abdominal wall muscles |
| UPJS | Abdominal wall. Inguinal canal. Peritoneum. Spleen | Student defines fascias of abdominal wall |
| UPJS | Abdominal wall. Inguinal canal. Peritoneum. Spleen | Student names arteries and nerves of abdominal wall |
| UPJS | Abdominal wall. Inguinal canal. Peritoneum. Spleen | Student distinguishes and defines abdominal and peritoneal cavity |
| UPJS | Retroperitoneal space | Student characterizes branches of abdominal aorta |
| UPJS | Retroperitoneal space | Student describes anatomical structures of retroperitoneal space |
| UPJS | Retroperitoneal space | Student names tributaries of inferior vena cava |
| UPJS | Retroperitoneal space | Student describes autonomic nerves of abdominal wall |
| UPJS | Retroperitoneal space | Student explains function of somatic nerves of posterior abdominal wall |
| UPJS | Brain ventricles, coverings and blood supply of the brain | Student names and explains function of large arteries of brain |
| UPJS | Brain ventricles, coverings and blood supply of the brain | Student describes groups of brain veins |
| UPJS | Brain ventricles, coverings and blood supply of the brain | Student describes venous sinuses of the dura mater |
| UPJS | Brain ventricles, coverings and blood supply of the brain | Student characterizes and distinguishes parts of cerebrospinal fluid system |
| UPJS | Brain ventricles, coverings and blood supply of the brain | Student explains function of meninges |
| UPJS | Revision of the structures of CNS | Student analyses anatomical structures and parts of brain |
| UPJS | Bones in general | Student explains structure of bones |
| UPJS | Bones in general | Student classifies bones |
| UPJS | Bones in general | Student characterizes vessels and nerves of bone |



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