

**Příloha č. 01 – Specifikace předmětu plnění veřejné zakázky**

Položka	Minimální požadované specifikace softwaru	Počet licencí	Výrobce a typ softwaru	Specifikace nabízeného softwaru	Cena za 1 jednotku bez DPH	Celková cena za položku bez DPH	Maximální celková cena položky bez DPH	Žadatel o položku	Příkazce operace	Zakázka	Pracoviště	Místo doručení; kontaktní osoba
Matematický software	<p>Komplexní software musí být schopný řešit a podporovat:</p> <ul style="list-style-type: none"> <li>- Integrované prostředí pro vzdělávací účely a vědeckotechnické výpočty, modelování, návrhy algoritmů, simulace, analýzu a prezentaci dat, paralelní výpočty, měření a zpracování signálů, návrhy řídicích a komunikačních systémů.</li> <li>- Programování aplikací, tedy především symbolické a znalostní programování s využitím symbolických výrazů a schémat pro rychlý návrh programového kódu, tj. rychlé a přehledné prototypování návrhů algoritmů a postupů při řešení výpočetních problémů.</li> <li>- Programování pomocí různých stylů - procedurální, funkcionální, rekurzivní, rule-based, pattern-based a možnost exportu vlastních funkcí do jiných programovacích jazyků.</li> <li>- Spolupráci a linkování s externími programy a vytvořenými moduly v C/C++, .NET, Java, Python a R jazyce, možnost integrace vlastních nativních funkcí přímo do jádra systému.</li> <li>- Využívání meta-algoritmů a jejich efektivní vnořování bez nutnosti psaní rozsáhlých programových kódů.</li> <li>- Vysokou kompatibilitu kódu s předcházejícími verzemi.</li> <li>- Symbolické matematické výpočty - např. symbolické řešení různých typů rovnic derivací a integrací..</li> <li>- Zadáání matematických úloh a zápis matematických výrazů v běžné podobě bez znalosti programování (free-form linguistic input v anglickém jazyce).</li> <li>- Interaktivní práci <ul style="list-style-type: none"> <li>- v podobě editoru programového kódu, ve kterém lze současně psát a formátovat "obyčejný text" a současně využít výpočetního potenciálu daného softwaru (např. pro psaní interaktivních skriptů, interaktivních vědeckých textů apod.),</li> <li>- ve formě vytváření grafických prezentací s využitím výpočetního potenciálu softwaru,</li> <li>- formou vytváření "uzavřených" programových a vizualizačních modulů pro názorné ukázky činnosti navržených algoritmů nebo matematických, fyzikálních, chemických principů. Dále bude umožňovat využívání modulů již publikovaných a sdílených ve veřejně dostupném repozitáři. tj. tvorbu interaktivních dokumentů (Computable Document Format - CDF), včetně interaktivních výpočetních aplikací nevyžadujících pro třetí uživatele znalost programovacího prostředí.</li> </ul> </li> <li>- Export do interaktivního CDF formátu.</li> <li>- Numerické výpočty včetně řešení soustav i jednotlivých diferenciálních rovnic (obyčejných i parciálních) a rovnic algebraických i transcendentních.</li> <li>- Real-time zpracování dat.</li> <li>- Propojení s databázemi, export a import dat.</li> <li>- Práci s algoritmy z oblasti strojového učení (machine learning), umělými neuronovými sítěmi včetně deep learning systémů, Bayseovskými klasifikátory, algoritmy pro feature extraction, např. Principle Component Analysis a dalšími. Tuto práci bude podporovat základní verze software bez požizování dalších rozšiřujících softwarových modulů.</li> <li>- Práci s umělými neuronovými sítěmi. Při práci s neuronovými sítěmi bude možno: <ul style="list-style-type: none"> <li>• ukládat již „naučené“ síť na specifické problémy pro pozdější využití nebo distribuování dalším akademickým a vědecko – výzkumným pracovníkům v komplexním formátu obsahujícím data daného paradigmatu neuronové sítě,</li> <li>• definovat si vlastní struktury z předdefinovaných typů vrstev, případně úplně vlastní návrhy topologií přes acyklicky orientované grafové struktury,</li> <li>• používat kategorické, numerické i grafické objekty na vstupech bez nutnosti vlastního preprocessingu,</li> <li>• pracovat s různými typy neuronových sítí - s učitelem (supervised) i bez učitele (unsupervised) včetně deep learning přístupů s možností implementace vlastních učících algoritmů,</li> <li>• využívat jednoduchý symbolický kód pro rychlý návrh,</li> <li>• jednoduchým způsobem symbolicky kombinovat i další přístupy a vytvářet hybridní systémy.</li> </ul> </li> <li>- Prostředky pro práci v oblasti image a signal processingu.</li> <li>- Rozšíření základní funkcionality pomocí externích specializovaných knihoven</li> </ul>	31	Wolfram Research, Mathematica	Mathematica Network Increment Standard	28 910,00 Kč	<b>896 210,00 Kč</b>	897 700,00 Kč					
<b>Celková nabídková cena za veřejnou zakázku bez DPH</b>							<b>896 210,00 Kč</b>					

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