Learning Outcome Matrix – Modules to EP BA 60610500 – Computer Engineering (Computer Engineering)

Learning Outcomes (critical units of competence)	Name module	
LO 2. Able to making decisions informed by philosophical and historical knowledge, techniques of discussion and debate. An ability to function effectively on a team whose members together provide leadership	HUM101	The newest History of Uzbekistan
LO 2. Able to making decisions informed by philosophical and historical knowledge, techniques of discussion and debate. An ability to function effectively on a team whose members together provide leadership	HUM102	Religious studies
LO 2. Able to making decisions informed by philosophical and historical knowledge, techniques of discussion and debate. An ability to function effectively on a team whose members together provide leadership	HUM103	Philosophy
LO 1. Able to communicate effectively with a range of audience and competently express oneself in Uzbek, Russian, and other foreign languages.	FRL101	Foreign language I
LO 1. Able to communicate effectively with a range of audience and competently express oneself in Uzbek, Russian, and other foreign languages.	FRL102	Foreign language II
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	MTH101	Calculus
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	PHY101	Physics I
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	PHY102	Physics II
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	MTH102	Differential equations
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	MTH103	Discrete structures
LO 6. Able to create and manipulate 3D models and develop proficiency and design computer systems and their components using modern programming languages.	PRG101	Programming I
LO 6. Able to create and manipulate 3D models and develop proficiency and design computer systems and their components using modern programming languages.	PRG102	Programming II
LO 1. Able to communicate effectively with a range of audience and competently express oneself in Uzbek, Russian, and other foreign languages.	AWR101	Academic writing
LO 7. Able to design, implement, and manage database systems, ensuring data integrity. Able to apply big data processing technologies and methods, to analyze and manage scalable and reliable cloud-based solutions using various cloud computing models and services.	DBM201	Databases
LO 8. Able to implement cybersecurity measures and understand the principles of cryptography and network security.	CSF201	Fundamentals of Cyber Security
LO 9. Able to analyze and design efficient algorithms and data structures to solve computational problems.	DSA201	Data structure and algorithms
LO 10. Able to design, implement, and analyze and to understand the design and functioning of computer hardware, including processors, memory, and I/O devices, digital systems using hardware description languages and tools.	EAC 201	Electronics and circuits
LO 10. Able to design, implement, and analyze and to understand the design and functioning of computer hardware, including processors, memory, and I/O devices, digital systems using hardware description languages and tools.	CAO201	Computer organization
LO 12. Able to design computer networks and data communication, including protocols, topologies, and to understand OSI model.	NWK201	Computer networks

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LO 13. Able to apply fundamental AI principles and techniques, design and implement multi-agent systems, and utilize data mining methods to extract meaningful patterns and insights from large datasets for solving complex engineering problems.	AIF201	Fundamentals of Artificial Intelligence
LO 6. Able to develop proficiency and design computer systems and their components using modern programming languages.	WAC201	Create web applications
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	PCA201	Parallel computer architecture and programming
LO 14. Able to analyze and process signals using digital signal and image processing techniques.	SIP201	Signal and image processing
LO 13. Able to apply fundamental AI principles and techniques, design and implement multi-agent systems, and utilize data mining methods to extract meaningful patterns and insights from large datasets for solving complex engineering problems.	MUS301	Multi-agent systems
LO 16. Able to utilize geoinformation technologies for capturing, storing, analyzing, and visualizing spatial data using Python.	GIT401	Geoinformation technologies
LO 5. Able to apply foundational and advanced knowledge in the fields of mathematics, natural sciences, and technical sciences to complex engineering tasks, utilizing the latest scientific advancements to solve computational problems.	MTH204	Probability and statistics
LO 11. Able to demonstrate knowledge of operating systems concepts, including process management, memory management, and file systems.	OPS201	Operating systems
LO 18. Able to apply knowledge in the field of engineering in practice and effectively use engineering knowledge when conducting qualifying training and processing the results of experiments and drawing valid conclusions based on them.	IDP301	Individual project
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	EBS301	Embedded systems
LO 4. Able to making decisions informed by health, safety, and workplace dynamics, utilizing methods to ensure the safety of social systems to preserve, develop, and enhance the effective functioning of individuals and society.	PHT101	Physical Training
LO 3. Able to making decisions informed by principles of engineering psychology, pedagogy and ecology.	GEN301	Pedagogy. Psychology
LO 3. Able to making decisions informed by principles of engineering psychology, pedagogy and ecology.	GEN302	Ecology
LO 4. Capable of making decisions informed by health, safety, and workplace dynamics, utilizing methods to ensure the safety of social systems to preserve, develop, and enhance the effective functioning of individuals and society.	GEN303	Power supply of information communication systems
LO 4. Capable of making decisions informed by health, safety, and workplace dynamics, utilizing methods to ensure the safety of social systems to preserve, develop, and enhance the effective functioning of individuals and society.	GEN304	Life safety
LO 17. Able to develop and utilize application software packages, and apply computational modeling techniques to simulate and solve real-world engineering problems.	ITS201	Application Software Package
LO 10. Able to design, implement, and analyze and to understand the design and functioning of computer hardware, including processors, memory, and I/O devices, digital systems using hardware description languages and tools.	ITS202	Computer architecture
LO 17. Able to develop and utilize application software packages, and apply computational modeling techniques to simulate and solve real-world engineering problems.	ITS303	Computer Modeling

Learning Outcomes (critical units of competence)	Name module	
LO 6. Able to create and manipulate 3D models and develop proficiency and design computer systems and their components using modern programming languages.	ITS304	3D Technology
LO 12. Able to design computer networks and data communication, including protocols, topologies, and to understand OSI model.	ITS305	Data communication
LO 6. Able to create and manipulate 3D models and develop proficiency and design computer systems and their components using modern programming languages.	ITS306	Virtual Reality
LO 16. Able to utilize geoinformation technologies for capturing, storing, analyzing, and visualizing spatial data using Python.	ITS407	Analyzing geodata based on Python
LO 10. Able to design, implement, and analyze and to understand the design and functioning of computer hardware, including processors, memory, and I/O devices, digital systems using hardware description languages and tools.	ITS408	Multi-core processor architecture
LO 7. Able to design, implement, and manage database systems, ensuring data integrity. Able to apply big data processing technologies and methods, to analyze and manage scalable and reliable cloud-based solutions using various cloud computing models and services.	ITS409	Multimedia Database
LO 14. Able to analyze and process signals using digital signal and image processing techniques.	ITS410	Bioinformatics and Biomechanics
LO 7. Able to design, implement, and manage database systems, ensuring data integrity. Able to apply big data processing technologies and methods, to analyze and manage scalable and reliable cloud-based solutions using various cloud computing models and services.	ITS411	Cloud Computing
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	ITS412	Distributed systems
LO 13. Able to apply fundamental AI principles and techniques, design and implement multi-agent systems, and utilize data mining methods to extract meaningful patterns and insights from large datasets for solving complex engineering problems.	ITS413	Data Mining
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	ITS414	HPC System
LO 7. Able to design, implement, and manage database systems, ensuring data integrity. Able to apply big data processing technologies and methods, to analyze and manage scalable and reliable cloud-based solutions using various cloud computing models and services.	ITS415	Big data management
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	ITS416	Computer Vision
LO 7. Able to design, implement, and manage database systems, ensuring data integrity. Able to apply big data processing technologies and methods, to analyze and manage scalable and reliable cloud-based solutions using various cloud computing models and services.	ITS417	Big data processing technologies and methods
LO 15. Able to design and implement parallel algorithms to improve computing efficiency and performance in HPC systems and distributed computing environments, deploy computer vision applications on Raspberry Pi using its hardware capabilities to efficiently process visual data, and test embedded systems by integrating hardware and software components for real-time applications.	ITS418	Programming Computer Vision with Raspberry Pi
LO 18. Able to apply knowledge in the field of engineering in practice and effectively use engineering knowledge when conducting qualifying training	QPR301	Practical Training

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and processing the results of experiments and drawing valid conclusions based on them.		
LO 18. Able to apply knowledge in the field of engineering in practice and effectively use engineering knowledge when conducting qualifying training and processing the results of experiments and drawing valid conclusions based on them.	QPR 402	Pre-graduation work practice
LO 18. Able to apply knowledge in the field of engineering in practice and effectively use engineering knowledge when conducting qualifying training and processing the results of experiments and drawing valid conclusions based on them.	GQW401	Graduation Qualification Work