

**吴兴征老师指导的 2020 级土木工程毕业设计列表（2024 年）**

NO	毕设论文题目	学号	姓名	备注
1	软土地基上防洪海堤稳定设计	20201703069	张子帅	H2001
2	桩锚基坑支护设计及方案比选	20201703170	罗海坡	H2002
3	高层住宅楼的钻孔灌注桩与碎石桩复合桩基设计及方案比选	20201703154	贺春晓	H2003
4	北京广渠路桥梁桩基础设计及比选	20201703200	张轶闻	H2004
5	海上风电三脚架桩基础设计与方案比选	20201703080	史泽	H2005
6	浅埋式多层钢筋混凝土框架结构设计及方案比选	20201703074	李雨轩	H2006
7	北京通州交通枢纽灌注支盘桩设计与方案比选	20201703131	曹超越	H2007

<b>NO</b>	<b>Title</b>	<b>Student number</b>	<b>Name</b>	<b>Note</b>
1	Stable design of flood control seawall on soft soil	20201703069	Zishuai Zhang	H2001
2	Design and scheme comparison of pile anchor foundation pit support	20201703170	Haipo Luo	H2002
3	Design and Comparative Selection of Cast-in-Place Pile and Gravel Pile Composite Pile Foundation for High-rise Residential Buildings	20201703154	Chunxiao He	H2003
4	Design and Comparison of Pile Foundations for Beijing Guangqu Road Bridge	20201703200	Yiwen Zhang	H2004
5	Offshore Wind Power Tripod Pile Foundation Design and Scheme Comparison	20201703080	Ze Shi	H2005
6	Design and scheme comparison of shallow buried multi-layer reinforced concrete frame structure	20201703074	Yuxuan Li	H2006
7	Design and scheme comparison of cast-in-place branch pile in Beijing transportation hub	20201703131	Chaoyue Cao	H2007

No	毕设论文题目	学号	姓名	备注
1	软土地基上防洪海堤稳定设计	20201703069	张子帅	H2001
<p>软土地基上防洪海堤稳定设计是水利工程领域的重要课题。软土地基的特性使得防洪海堤的设计和施工面临挑战，如地基沉降、侧向变形等问题。为确保防洪海堤的稳定性和安全性，需要深入研究软土地基的工程特点和力学性质，探讨针对软土地基的防洪海堤设计原则和方法。通过对软土地基防洪海堤设计的系统研究，可以为工程实践提供科学依据，提高防洪工程的抗灾能力和可持续发展水平。</p> <p>本文旨在探讨软土地基上防洪海堤稳定设计。首先分析了软土地基的特性，包括工程特点、力学性质和水文地质特征。然后阐述了防洪海堤的设计原理，包括功能、设计标准、稳定性分析方法。接着提出了针对软土地基的防洪海堤设计方法，包括影响因素、设计原则和施工技术。最后介绍了漫顶稳定分析、边坡稳定计算方法以及地基沉降量计算，并通过工程实例分析和案例研究进行验证。通过本文的研究，可以为软土地基上防洪海堤的稳定设计提供理论支持和实践指导。</p> <p><b>关键词：</b>边坡稳定；渗透梯度；软土地基；漫顶高程；抗滑稳定</p> <p>The stable design of flood control levees on soft soil foundations is an important topic in the field of water conservancy engineering. The characteristics of soft soil foundations pose challenges to the design and construction of flood control levees, such as foundation settlement and lateral deformation. In order to ensure the stability and safety of flood control levees, it is necessary to conduct in-depth research on the engineering characteristics and mechanical properties of soft soil foundations, and explore the design principles and methods for flood control levees on soft soil foundations. Through systematic research on the design of flood control levees on soft soil foundations, scientific basis can be provided for engineering practice, improving the disaster resistance and sustainable development level of flood control projects.</p> <p>This article aims to explore the stable design of flood control embankments on soft soil foundations. Firstly, the characteristics of soft soil foundations are analyzed, including engineering features, mechanical properties, and hydrogeological characteristics. Then, the design principles of flood control embankments are elaborated, including functions, design standards, and stability analysis methods. Subsequently, a design method for flood control embankments on soft soil foundations is proposed, covering influencing factors, design principles, and construction techniques. Finally, the methods for analysis of crest stability and slope stability are introduced, and validated through engineering case studies and analysis. Through the research in this article, theoretical support and practical guidance can be provided for the stable design of flood control embankments on soft soil foundations.</p> <p><b>Key Words:</b> Slope stability; Percolation gradient; Soft soil foundation; Overflow level elevation; Anti-sliding stability</p>				

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2	桩锚基坑支护设计及方案比选	20201703170	罗海坡	H2002
<p>本文将讨论板桩码头工程和基坑工程中的桩锚式支护设计方案。在板桩码头工程和基坑工程的设计中，选择合适的支护方案至关重要，而桩锚式支护是其中一种常见的选择。该方案结合了桩基和锚杆的优势，能够有效地抵抗横向和纵向荷载，并具有较高的稳定性。然而，在实际工程中，需要考虑诸多因素，如基坑工程需要考虑地质条件、荷载特性等，板桩码头还需考虑波浪荷载。因此，本文将通过计算在波浪荷载和土压力的共同作用下的板桩码头工程的桩基，给出桩锚设计的具体设计参数，并且通过理正深基坑的计算给出针对具体基坑工程情况的最佳方案建议，以确保基坑工程的安全可靠性和经济性。</p> <p><b>关键字：</b>锚杆；板桩码头；桩锚式支护；理正；方案比选</p> <p>This article will discuss the design scheme of pile-anchor support in sheet pile wharf and foundation pit engineering. In the design of sheet pile wharf and foundation pit engineering, choosing the appropriate support scheme is crucial, and pile-anchor support is one common option. This scheme combines the advantages of pile foundation and anchor rods, effectively resisting lateral and longitudinal loads, and possessing high stability. However, in practical engineering, many factors need to be considered, such as geological conditions and load characteristics for foundation pit engineering, and wave loads for sheet pile wharves. Therefore, this article will calculate the pile foundation of a sheet pile wharf under the combined action of wave loads and soil pressure, provide specific design parameters for pile-anchor design, and give the best solution recommendations for specific foundation pit engineering situations through calculations of deep foundation pits, ensuring the safety, reliability, and economy of foundation pit engineering.</p> <p><b>Key words:</b> Anchor rod; Sheet pile wharf; Pile anchored shoring; Rational deep foundation pit software; Scheme comparison</p>				
No	毕设论文题目	学号	姓名	备注
3	高层住宅楼的钻孔灌注桩与碎石桩复合桩基设计及方案比选	20201703154	贺春晓	H2003
<p>碎石桩在处理可能液化的土层方面是一种有效的手段，它不仅能够防止地基液化，还能加固土体并提升地基的承重能力。另一方面，混凝土灌注桩作为一种广泛采用的地基技术，以其强大的适用性和减少沉降、增强抗震性能的能力而著称。而地质勘测在地基设计中扮演着核心角色，它为土木工程师揭示了施工场地的土层物理特性等关键信息，这对于设计前的现场状况全面评估至关重要。随着地基工程技术的前进，工程师们现在能够利用多样的设计策略来应对不稳定的土质或特殊地质条件，从而预防可能由此引发的结构问题。</p> <p>本篇论文将依据现场地质勘测结果和设计规范，为高层建筑项目实施桩</p>				

	<p>基设计。在设计过程中，综合考虑地质状况、项目需求和成本效益等多方面因素，确保设计方案的科学性、合理性和实施性。通过对比分析不同方案的优势和局限，将选出一个最符合项目需求的地基设计方案，为高层建筑的稳固建设提供坚实的支撑。</p> <p><b>关键词：</b>碎石桩；灌注桩；地基设计；承台设计；液化</p> <p>Gravel piles are an effective means of dealing with potentially liquefiable soil layers, as they can not only prevent soil liquefaction but also reinforce the soil and enhance the foundation's load-bearing capacity. On the other hand, concrete cast-in-situ piles, as a widely adopted foundation technology, are known for their strong applicability and ability to reduce settlement and enhance seismic resistance. Geotechnical investigation plays a central role in foundation design, revealing key information about the physical characteristics of soil layers at the construction site, which is crucial for a comprehensive assessment of site conditions before design. With the advancement of foundation engineering technology, engineers can now utilize diverse design strategies to address unstable soil conditions or special geological conditions, thus preventing potential structural problems that may arise.</p> <p>This paper will customize a pile foundation design for a planned high-rise building project based on site geological investigation results and design specifications. In the design process, we will comprehensively consider factors such as geological conditions, project requirements, and cost-effectiveness to ensure the scientific, reasonable, and implementable nature of the design scheme. By comparing and analyzing the advantages and limitations of different schemes, we will select a foundation design scheme that best meets the project requirements, providing solid support for the stable construction of high-rise buildings.</p> <p><b>Keywords:</b> Sand compaction pile; Gravel piles; Cast-in-situ piles; Foundation design; Cap design; Liquefaction</p>			
No	毕设论文题目	学号	姓名	备注
4	北京广渠路桥梁桩基础设计及比选	20201703200	张轶闻	H2004
	<p>本文以北京市通州区凉水河桥梁拟建工程为背景，详细分析了该地区地质情况和工程概况，选择合适的持力层，并分析了场地不良地质现象和区域水文地质条件，阐述了施工过程及项目实际运营中可能存在的不良因素，根据场地情况选择钻孔灌注摩擦桩进行施工。同时对拟建桥梁的荷载组合进行计算，并根据计算结果，同时借助 R 语言进行了有局部冲刷情况下的桩基础设计及桩基承载力的验算，以及桩身内力和水平位移的计算。此外，本文还对承台结构设计进行了详细分析，包括尺寸设计、结构设计和方案比选，并进行了抗弯、抗剪、抗冲切的验算及承台配筋的计算以确保设计合理性。此外，本文基于钢筋用量、混凝土用量、人工耗费进行了造价分析，从经济效益方面，比选出最佳的设计方案。</p> <p><b>关键词：</b>桥梁荷载；局部冲刷；桩基础；承台；造价分析</p> <p>This paper takes the proposed construction project of the Liangshui River</p>			

	<p>Bridge in Tongzhou District, Beijing as its background, providing a comprehensive analysis of the regional geological conditions and engineering overview. It selects an appropriate bearing stratum and analyzes the adverse geological phenomena and regional hydrogeological conditions of the site. The paper discusses potential adverse factors that may arise during the construction process and the actual operation of the project. Based on the site conditions, it chooses to construct using drilled and grouted friction piles. At the same time, the paper completes the calculation of the load combinations for the proposed bridge. According to the calculated results, and with the aid of the R language, it carries out the design of the pile foundation under conditions with local scour and verifies the bearing capacity of the pile foundation, as well as calculates the internal forces and horizontal displacement of the pile body.</p> <p>In addition, the paper conducts a detailed analysis of the design of the cap structure, including size design, structural design, and scheme selection. It performs verification calculations for bending, shear, and scour resistance, and calculates the reinforcement of the cap to ensure the rationality of the design. Furthermore, the paper conducts a cost analysis based on the amount of steel reinforcement, the quantity of concrete, and the labor cost. From an economic perspective, it selects the best design scheme.</p> <p><b>Key words:</b> Bridge loads; Local scour; pile foundation; Pile cap; Cost analysis</p>			
No	毕设论文题目	学号	姓名	备注
5	海上风电三脚架桩基础设计与方案比选	20201703080	史泽	H2005
<p>随着全球能源需求的不断增长和环境污染问题的日益严重，可再生能源的开发利用已成为当今世界能源发展的重要方向。海上风电作为一种清洁、可再生的能源形式，具有巨大的开发潜力。海上风电桩基础是海上风电站的重要组成部分，其设计和安装对于海上风电站的性能和可靠性具有关键性影响。然而，海上风电的开发面临着诸多挑战，其中最为关键的是海上风电桩基础的设计与施工。本文旨在探讨海上风电桩基础的设计与施工技术，为海上风电的开发提供参考。</p> <p>本文对较深海域的风电的桩承式基础进行设计，采用三脚架桩基础形式，并采用钢管桩设计。从不变荷载和可变荷载分别进行分析，运用莫里森公式进行计算。对三脚架桩基础进行稳定性和强度验算，并调整桩径选取满足工程需要且较为经济的方案。</p> <p><b>关键词:</b> 海上风电、三脚架桩基础、桩基础设计、方案比选</p> <p>With the continuous growth of global energy demand and the increasing severity of environmental pollution issues, the development and utilization of renewable energy have become an important direction for energy development in today's world. Offshore wind power, as a form of clean and renewable energy, has tremendous development potential. Offshore wind turbine foundations are an important component of offshore wind power stations, and their design and installation have a crucial impact on the performance and reliability of offshore wind power stations. However, the development of</p>				

	<p>offshore wind power faces many challenges, among which the most critical is the design and construction of offshore wind turbine foundations. This article aims to explore the design and construction technology of offshore wind turbine foundations to provide ences for the development of offshore wind power.</p> <p>In this paper, the design of wind turbine foundations for deeper water areas is carried out using a tripod pile foundation form, and steel pipe piles are designed. The analysis is conducted separately from both constant and variable loads, and the Morrison equation is used for calculations. The stability and strength of the tripod pile foundation are verified, and the pile diameter is adjusted to select a scheme that meets the engineering needs and is more economical.</p> <p><b>Key words:</b> Offshore wind power; Tripod pile foundation; Pile foundation design; Scheme comparison and selection</p>			
<b>No</b>	<b>毕设论文题目</b>	<b>学号</b>	<b>姓名</b>	<b>备注</b>
6	浅埋式多层钢筋混凝土框架结构设计 及方案比选	20201703074	李雨轩	H2006
	<p>随着城市人口的增加和城市规模的扩大,交通拥堵成为城市发展面临的严重问题。地面上的交通已接近饱和并且不能满足人们的需求,地下交通应运而生并蓬勃高速发展,地铁作为一种高效、快速的大容量公共交通工具,能够有效缓解城市交通压力,提高城市交通效率。浅埋式钢筋混凝土框架具有承载能力强、经济实用、适应性强等特点,所以这种结构形式在建筑领域中继续发挥重要的作用。通过严谨系统的剖析,这次论文研究目的是探究浅埋式三层钢筋混凝土框架结构(例如地下铁路车站)的设计,以及根据其特殊性能、埋深深度以及岩土特点,做出其合理组合来抵抗各种荷载。然后对该结构的受力特点进行了分析,并对结构的受力性能进行了评估。进而针对该结构的设计原则和设计方法进行了探讨,包括结构的选材、构造和连接方式等方面。最后,通过实例分析表明,所提出的设计方法能够满足结构的受力性能要求。</p> <p><b>关键词:</b> 浅埋式三层钢筋混凝土框架; 框架钢筋设计布置; 设计方案</p> <p>With the increase of urban population and the expansion of urban scale, traffic congestion has become a serious problem faced by urban development. Ground transportation is approaching saturation and cannot meet people's needs. Underground transportation has emerged and flourished rapidly. As an efficient and fast high-capacity public transportation tool, the subway can effectively alleviate urban traffic pressure and improve urban traffic efficiency. Shallow buried reinforced concrete frames have the characteristics of strong bearing capacity, economic practicality, and strong adaptability, so this structural form continues to play an important role in the field of construction. Through rigorous and systematic analysis, the purpose of this paper is to explore the design of shallow buried three story reinforced concrete frame structures (such as underground railway stations), and to make reasonable combinations to resist various loads based on their special performance, burial depth, and geotechnical characteristics. Then, the stress characteristics of the structure were analyzed, and</p>			

	<p>the stress performance of the structure was evaluated. Furthermore, the design principles and methods for this structure were discussed, including material selection, construction, and connection methods. Finally, case analysis shows that the proposed design method can meet the requirements of structural stress performance.</p> <p><b>Keywords:</b> Shallow buried three-layer reinforced concrete frame; Design and layout of frame reinforcement bars; Design scheme.</p>			
<b>No</b>	<b>毕设论文题目</b>	<b>学号</b>	<b>姓名</b>	<b>备注</b>
7	北京通州交通枢纽灌注支盘桩设计与 方案比选	20201703131	曹超越	H2007
	<p>桩基础作为一种关键性的支撑体系，被广泛应用于各类工程项目中，包括高层建筑、港口桥梁等多种工程项目中。它是确保工程结构安全稳定、持久耐用的重要因素，同时也是土木工程领域持续研究与创新的重要方向。本文针对北京通州交通枢纽工程站房项目的核心区域，为了实现更高效的桩基础设计，选择异形桩基础类型中的支盘桩基础作为创新方案。相较于传统的同直径普通桩基础，支盘桩不仅显著缩短了桩长，还显著增强了承载能力，从而优化了整体工程效果。本文依据工程场地岩土工程初步勘察报告、土层物理性质数据表和参考相关规范以及在实际工程需求中进行适合的桩型的选择，明确了持力层与支盘放置位置，并对桩的几何尺寸及承台埋深进行了周密的设计。同时深入开展了单桩承载力的验算，并严格评估了承台的稳定性。此外，为了确保结构安全，还对柱和角桩的抗冲切及抗剪能力进行了详尽的计算与校核。为比较支盘桩与普通桩的设计效果，本文还设计了一个规格不变的普通桩方案作为对比参照。最终，通过对两种桩基础方案进行造价分析与综合对比，阐述了支盘桩方案与普通桩方案之间的差异、特点以及各自的适用环境，为实际工程应用提供了有力的技术支持。</p> <p><b>关键词：</b> 桩基础； 支盘桩； 桩承台验算； 方案比选</p> <p>As a key supporting system, pile foundation is widely used in various engineering projects, including high-rise buildings, port bridges and other engineering projects. It is an important factor to ensure the safety, stability and durability of engineering structures, and it is also an important direction of continuous research and innovation in the field of civil engineering. Aiming at the core area of the station building project of Tongzhou Transportation Hub in Beijing, in order to realize more efficient pile foundation design, this paper chooses the branch pile foundation as an innovative scheme. Compared with the traditional common pile foundation with the same diameter, the branch pile not only significantly shortens the pile length, but also significantly enhances the bearing capacity, thus optimizing the overall engineering effect. In this paper, according to the preliminary geotechnical investigation report of the engineering site, the data sheet of soil physical properties and reference to relevant specifications, and the selection of suitable pile types in actual engineering requirements, the placement position of bearing layer and supporting plate is</p>			



defined, and the geometric size of pile and the buried depth of pile cap are carefully designed.

At the same time, the calculation of bearing capacity of single pile is carried out in depth, and the stability of pile cap is strictly evaluated. In addition, in order to ensure the structural safety, the punching and shearing resistance of columns and corner piles are calculated and checked in detail. In order to compare the design effect of branch pile with ordinary pile, this paper also designs an ordinary pile scheme with the same specifications as a reference. Finally, through the cost analysis and comprehensive comparison of the two pile foundation schemes, the differences, characteristics and applicable environments between the branch pile scheme and the common pile scheme are expounded, which provides strong technical support for practical engineering application.

**Key Words:** pile foundation; Branch pile; Checking calculation of pile cap; Scheme comparison