吴兴征老师指导的2022级土木工程毕业设计列表（2026年）

NO	毕设论文题目	学号	姓名	备注
1	桥梁桩基础设计及方案比选	20221902180	王昊然	J2201
2	地铁衬砌内力计算与设计	20221902036	于德政	J2202
3	高层建筑复合桩基设计及方案比选	20221902181	宋森森	J2203
4	深海风电桩基础设计与方案比选	20221902173	侯光龙	J2204
5	多失效模式下防洪海堤设计与方案对比	20221902163	李耀文	J2205

NO	Title	Student number	Name	Note
1	Design and scheme comparison of bridge pile foundations	20221902180	Haoran Wang	J2201
2	Internal force calculation and design of metro tunnel lining	20221902036	Dezheng Yu	J2202
3	Design and scheme comparison of composite pile foundations for high-rise buildings	20221902181	Sensen Song	J2203
4	Design and scheme comparison of pile foundations for deep-sea wind power	20221902173	Guanglong Hou	J2204
5	Design and scheme comparison of flood control seawalls under multiple failure modes	20221902163	Yaowen Li	J2205

No	毕设论文题目	学号	姓名	备注
1	桥梁桩基础设计及方案比选	20221902180	王昊然	J2201
	随着我国跨江跨海交通基础设施的快速发展，大跨度悬索桥已成为跨越江河湖海、深山峡谷的核心桥型，而桩基础作为悬索桥主塔的核心受力构件，其设计合理性直接决定了桥梁整体的安全性、耐久性与经济性。本文以某主跨 1208m 双塔单跨悬索桥主塔基础为工程背景，依据《公路桥涵地基与基础设计规范》（JTG 3363-2019）等相关规范，结合桥位区工程地质条件与主塔荷载特性，完成了 2 种不同桩基础方案的详细设计与承载力、沉降验算。通过经济分析，完成多方案综合比选，确定最优设计方案。研究成果可为同类大型悬索桥桩基础设计提供参考，同时实现了本科阶段土木工程专业基础理论与工程实践的综合应用。 **关键词：**大型悬索桥；桩基础设计；钻孔灌注摩擦桩；群桩基础；方案比选 With the rapid development of cross-river and cross-sea transportation infrastructure in China, long-span suspension bridges have become the core bridge type for crossing rivers, lakes, seas, and deep canyons. As the primary load-bearing component of the main tower of a suspension bridge, the rationality of the pile foundation design directly determines the overall safety, durability, and economy of the bridge. This paper takes the main tower foundation of a two-tower single-span suspension bridge with a main span of 1,208 m as the engineering background. Based on relevant codes such as the "Code for Design of Ground Base and Foundation of Highway Bridges and Culverts" (JTG 3363-2019), combined with the geological conditions of the bridge site and the load characteristics of the main tower, detailed design, bearing capacity, and settlement verification of two different pile foundation schemes are completed. Through economic analysis, a multi-scheme comprehensive comparison is carried out to determine the optimal design scheme. The research results can provide a reference for the pile foundation design of similar large-scale suspension bridges, while achieving the comprehensive application of fundamental theories and engineering practices in civil engineering at the undergraduate level. **Key Words：**Large suspension bridge; Pile foundation design; Bored friction pile; Pile group foundation; Scheme comparison and selection			

No	毕设论文题目	学号	姓名	备注
2	地铁衬砌内力计算与设计	20221902036	于德政	J2202
	为确保地铁衬砌结构的安全性、耐久性与经济合理性，本文围绕衬砌内力计算与设计展开系统研究。结合项目具体工程地质与水文条件，通过计算方法对衬砌内力进行分析。以结构性能为核心，设计涵盖断面形式、材料参数、配筋率等关键指标的多组差异化结构方案。建立涵盖结构安全性、施工可行性、经济性及耐久性的多维度综合评价体系，通过量化分析实现对方案的科学优化。研究结果表明，本方法可为地铁衬砌工程的高效、安全实施提			

	供坚实的技术支撑与决策依据。 **关键词**：地铁衬砌；内力计算；方案设计 To ensure the safety, durability and economic rationality of subway lining structures, this paper conducts a systematic study on the internal force calculation and design scheme comparison of linings. Combined with the specific engineering geological and hydrological conditions of the project, various calculation methods are used to analyze the internal forces of the lining, and the differences in applicability and calculation accuracy among different calculation models are compared in depth. Focusing on structural performance, multiple groups of differentiated structural schemes covering key indicators such as section form, material parameters and reinforcement ratio are designed. A multi-dimensional comprehensive evaluation system including structural safety, construction feasibility, economy and durability is established, and scientific comparison and optimization of each scheme are realized through quantitative analysis. The results show that this method can effectively select the optimal lining structural scheme, and provide solid technical support and decision-making basis for the efficient and safe implementation of subway lining engineering. **Key Words**：Subway Lining; Internal Force Calculation; Scheme Comparison and Selection

No	毕设论文题目	学号	姓名	备注
3	高层建筑复合桩基设计及方案比选	20221902181	宋森森	J2203
	随着城市化进程加快，高层建筑对地基承载力和稳定性要求日益提高。本文以天津市滨海新区大连东道地块一栋 25 层住宅楼为工程背景，针对场地软土层发育及轻微液化问题，提出两种桩筏基础方案：钻孔压浆灌注桩+筏板基础（方案一）和 PHC 管桩+筏板基础（方案二）。按照《建筑桩基技术规范》（JGJ 94-2008）和《建筑地基基础设计规范》（GB 50007）进行详细设计，包括砂石桩布置、单桩承载力计算、筏板设计与各项承载力验算，并进行造价对比分析。结果表明：方案一单桩承载力较高（2100 kN），筏板厚度 1.4 m 即可满足要求，造价低，但碳排放较高；方案二施工速度快、碳排放较低，但综合造价高于方案一，方案一在造价和现场适应性方面更具优势，适合作为综合推荐方案；方案二在施工速度和碳排放方面具有一定优势，可作为低碳优先情形下的备选方案。本文为软土地区高层建筑桩基设计提供了完整的计算实例和参考。 **关键词**：桩筏基础；钻孔压浆灌注桩；PHC 管桩；砂石桩；承载力验算；方案比选 With the acceleration of urbanization, high-rise buildings impose increasingly higher requirements on the bearing capacity and stability of foundations. Taking a 25-story residential building located in the Dalian East Road plot of Tianjin Binhai New Area as the engineering background, this paper proposes two pile-raft foundation schemes to address the soft soil strata and			

	slight liquefaction potential of the site: cast-in-place grouted piles with a raft foundation (Scheme 1) and PHC pipe piles with a raft foundation (Scheme 2). Detailed designs are carried out in accordance with the “Technical Code for Building Pile Foundations” (JGJ 94-2008) and the “Code for Design of Building Foundations” (GB 50007), including the layout of sand-gravel piles, calculation of the vertical bearing capacity of a single pile, design of the raft and verification of various bearing capacities, followed by a comparative cost analysis. The results show that Scheme 1 has a higher single-pile bearing capacity (2100 kN) and requires a raft thickness of only 1.4 m, while Scheme 2 offers faster construction speed and a lower cost, but its single-pile bearing capacity is constrained by the soft soil (1600 kN), requiring more piles and a slightly thicker raft. Considering both technical reliability and economic efficiency, Scheme 2 is recommended. This paper provides a complete calculation example and reference for the design of pile foundations for high-rise buildings in soft soil areas. **Key words：** pile-raft foundation; cast-in-place grouted pile; PHC pipe pile; sand-gravel pile; bearing capacity verification; scheme comparison

No	**毕设论文题目**	**学号**	**姓名**	**备注**
4	深海风电桩基础设计与方案比选	20221902173	侯光龙	J2204

全球能源向低碳绿色转型，海上风电是我国实现“ 双碳”目标的重要支撑。深远海环境复杂，风电桩基础需耐受风、浪、流等耦合荷载。本文依托华能山东半岛北 L 场址项目，开展深海风电单桩基础设计与方案比选，力求打造安全、经济且适配深海工况的基础方案。

研究初期，系统梳理并分析了工程区域地质条件、风机技术参数及海洋气象水文资料，依据现行规范完成风荷载、波浪荷载与水流荷载的计算分析。采用莫里森方程进行水动力荷载计算，结合 m 法对单桩基础的内力与变形特性进行详细求解。设计采用外径 8m、壁厚 200mm 钢管单桩作为初始方案，经验算，基础竖向抗压承载力、水平承载力均满足极端工况要求，结构强度、刚度及整体稳定性均符合规范规定。

在此基础上，对不同桩径、壁厚及入土深度方案进行对比分析，在满足安全储备的前提下，兼顾结构安全性与工程经济性。研究表明，单桩基础受力简洁、传力路径明确，在合理设计下可有效承受深水复合环境荷载，具备良好的适用性与经济性，能够为深远海海上风电工程提供技术支撑。

本文研究成果可为同类深海风电单桩基础设计提供理论参考与工程借鉴，通过方案比选实现成本控制，对推动海上风电规模化开发、降低工程造价与提升综合效益具有积极意义。

关键词：深海风电；荷载计算；单桩基础；方案比选

As the global energy sector transitions towards low-carbon and green development, offshore wind power is an important support for China to achieve its "dual carbon" goals. The deep-sea environment is complex, and wind turbine pile foundations need to withstand coupled loads from wind, waves, and currents. This paper, based on the Huaneng Shandong Peninsula North L site project, carries out the design and scheme selection of deep-sea wind turbine single-pile

	foundations, aiming to create a foundation solution that is safe, economical, and suitable for deep-sea conditions. In the early stage of the study, the geological conditions of the project area, wind turbine technical parameters, and meteorological and hydrological data were systematically reviewed and analyzed. According to current standards, calculations and analyses were completed for wind loads, wave loads, and current loads. The Morison equation was used for hydrodynamic load calculations, and the m-method was applied to conduct detailed solutions for the internal forces and deformation characteristics of single-pile foundations. The design initially adopted an 8m outer diameter, 200mm wall thickness steel pipe single pile as the initial scheme. Based on empirical calculations, the vertical compressive bearing capacity and horizontal bearing capacity of the foundation meet the requirements under extreme conditions, and the structural strength, stiffness, and overall stability all comply with the specifications. On this basis, a comparative analysis of different pile diameters, wall thicknesses, and penetration depths was carried out, taking into account both structural safety and project economy while ensuring safety reserves. Research shows that single-pile foundations have simple stress characteristics and clear load transfer paths, and with reasonable design, they can effectively withstand deepwater composite environmental loads. They possess good applicability and economy, providing technical support for deep offshore wind power projects. The research results of this paper can provide theoretical reference and engineering guidance for the design of similar monopile foundations for offshore deep-sea wind power. By comparing different schemes, cost control can be achieved, which is of positive significance for promoting the large-scale development of offshore wind power, reducing project costs, and improving overall efficiency. **Key Words：** Deep-sea wind power; load calculation; single pile foundation; scheme comparison

No	**毕设论文题目**	**学号**	**姓名**	**备注**
5	多失效模式下防洪海堤设计与方案对比	20221902163	李耀文	J2205
	多失效模式控制下的防洪海堤设计，是黄海沿岸软土区域防洪工程的核心研究内容。连云港市灌云县灌西段紧邻黄海，辖区内软土地基分布范围广，具备压缩性高、承载力偏低的特点，在波浪、潮汐与洪水的共同作用下，海堤易出现边坡失稳、渗透破坏、漫顶越浪、不均匀沉降四类失效问题，直接威胁区域防洪安全。为提升海堤结构的安全性与耐久性，本文以灌云县灌西段为工程依托，开展多失效模式下防洪海堤的设计与方案对比研究。 本文首先分析区域地质、水文条件，总结软土地基的核心工程特性；结合堤防工程规范，确定防洪标准、设计水位与波浪计算参数；针对边坡滑动、管			

涌、流土、漫顶越浪、地基沉降四类失效模式，完成稳定性计算与断面设计；对不同堤身坡度、护面形式、地基处理方案开展技术经济比选，经计算与综合比选确定安全、经济的。结果表明，多失效模式协同管控可显著提升海堤整体稳定性，研究成果可为连云港沿海软土区域防洪海堤工程提供设计参考。
关键词：防洪海堤；软土地基；多失效模式；稳定性分析；方案比选

Design of flood control seawalls under multiple failure modes is a core research content of flood control projects in soft soil regions along the Yellow Sea. The Guanxi section of Guanyun County, Lianyungang City is adjacent to the Yellow Sea, where soft soil foundations are widely distributed with high compressibility and low bearing capacity. Under the combined action of waves, tides and floods, the seawall is prone to four typical failure modes including slope instability, seepage failure, wave overtopping and uneven settlement, which directly threaten regional flood control safety. To improve the safety and durability of the seawall structure, this paper takes the Guanxi section as the engineering background to carry out the design and scheme comparison of flood control seawalls under multiple failure modes.

Firstly, this paper analyzes the geological and hydrological conditions of the study area, and summarizes the core engineering characteristics of soft soil foundations. Combined with the current specifications for embankment engineering, the flood control standards, design water levels and wave calculation parameters are clarified. Aiming at four failure modes: slope sliding, piping and soil boiling, wave overtopping and foundation settlement, the stability calculation and section design are carried out. Technical and economic comparisons are conducted on different embankment slopes, facing forms and foundation treatment schemes, and a safe, reliable and economical recommended scheme is determined through checking calculation. The research shows that the collaborative control of multiple failure mode risks can significantly improve the overall stability of the seawall, and the results can provide design basis and practical reference for flood control seawall projects in soft soil coastal areas of Lianyungang.
Key Words： Flood control seawall; Soft soil foundation; Multiple failure modes; Stability analysis; Scheme comparison