| **Course Map** | | |
| --- | --- | --- |
| **Outline** | | |
| Department name | Department of Forestry | |
| Class | Master’s Program  Note: 2022 5th Course Meeting - The courses 'Principles of Research in Forest Resources and Scientific Writing' and 'Biomass Gasification Process' will be made available to both MSc and Bachelor. | |
|  | | |
| **Educational Objectives** | | |
| **No.** | **Item** | |
| 1 | Cultivate scientific and technological talents with international outlook, independent and innovative ability in the conservation and management of forest resources and the sustainable utilization of biomaterials. | |
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| **Student’s Core Competencies** | | |
| **No.** | **Item** | **Corresponding to Educational Objectives No.** |
| 1 | Forest resources conservation and agriculture | 1 |
| 2 | Professional knowledge and skills in forest management | 1 |
| 3 | Professional knowledge in sustainable utilization of biomaterial | 1 |

| **Lesson Plan** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Chinese Name** | **Course English Name** | **Planning points (See note)** | | | | **Corresponding core competency No.** | **Sugges-ted grade level** | **Offering department** | **Notes** |
| 1 | 2 | 3 | 4 |
| **College Core Courses (If not exempted, please state compulsory or electives)** | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Compulsory Courses** | | | | | | | | | |
| 碩士論文 | Thesis | M | C | Y | 6 | 1-30,2-20  3-50 | 2 | Department of Forestry |  |
| 森林經營與管理專題 (一) | Seminar in Forest Management and Administration (I) | M | C | Y | 2 | 2-100 | 1 | Department of Forestry |  |
| 森林生物與保育專題(一) | Seminar in Forest Biology and Conservation (I) | M | C | Y | 2 | 1-100 | 1 | Department of Forestry |  |
| 林產物性專題(一) | Seminar in Physical Aspects of Forest Products (I) | M | C | Y | 2 | 3-100 | 1 | Department of Forestry |  |
| 林產化性專題(一) | Seminar in Chemical Aspects of Forest Products (I) | M | C | Y | 2 | 3-100 | 1 | Department of Forestry |  |
| 森林經營與管理專題(二) | Seminar in Forest Management and Administration (II) | M | C | Y | 2 | 2-100 | 2 | Department of Forestry |  |
| 森林生物與保育專題(二) | Seminar in Forest Biology and Conservation (II) | M | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 林產物性專題(二) | Seminar in Physical Aspects of Forest Products (II) | M | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 林產化性專題(二) | Seminar in Chemical Aspects of Forest Products (II) | M | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |

| **Lesson Plan** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Chinese Name** | **Course English Name** | **Planning points (See note)** | | | | | **Correspond-ing core competency No.** | **Sugges-ted grade level** | **Offering departm-ent** | **Notes** |
| 1 | | 2 | 3 | 4 |
| **Elective Courses** | | | | | | | | | | |
| 氣候變遷與森林碳管理特論 | Special Topics on Climate Change and Forest Carbon Management | M | | A | S | 3 | 2-100 | 1 | Department of Forestry | 2022-M1 name change |
| 掃瞄式電顯林學應用技術 | Application of Electronic Microscopy in Forestry | M | | AB | S | 3 | 1-80,2-20 | 1 | Department of Plant Pathology | 2022-M1 recovered  2020-S1 accidental removal |
| 森林益康與創新應用 | Forest Benefits and Innovation Application | M | | A | S | 2 | 1-40,2-40,3-20 | 1 | Department of Forestry | 2021-M4 change to offline teaching  2021-M3 newly opened, both MSc and Bachelor |
| 基因體學概論 | Introduction of Genomics | M | | A | S | 3 | 3-100 | 1 | Department of Forestry | 2021-S1 newly opened |
| 木構造環境設計學特論 | Special Topics in Environmental Design for Wood Construction | M | | A | S | 3 | 3-100 | 1 | Department of Forestry | 2018-S2 newly opened |
| 森林保育文獻研讀 | Review of Literature in Forest Conservation | M | | C | Y | 2 | 1-80,2-20 | 2 | Department of Forestry | 2018-S1 newly opened |
| 森林資源研究方法與論文寫作 | Principle of research in forest resources and scientific writing | M | | A | S | 3 | 1-60,2-20,3-20 | 1 | Department of Forestry | 2017-S2 newly opened  2022-M5 available for both MSc and Bachelor |
| 木質結構設計特論 | Special Topics in Wood Construction Design | M | | A | S | 3 | 3-100 | 1 | Department of Forestry | 2015-S2 newly opened |
| 生質能源技術 | Bioenergy Technology | M | | A | S | 3 | 6-100 | 1 | Department of Forestry | 2015-S2 change to offline teaching |
| 森林集水區經營特論 | Special Topic in Forest Watershed Management | M | | A | S | 3 | 1-100 | 1 | Department of Forestry | 2013-S2 newly opened |
| 數據分析與統計應用 | Data Analysis and Statistical Applications | M | | A | S | 3 | 1-35,2-35  3-30 | 1 | Department of Forestry | 2013-S2 newly opened |
| 榕果生物學 | Biology of Fig and its Associated Animals | M | | A | S | 3 | 1-100 | 1 | Department of Forestry | 2011-S2 newly opened |
| 製漿造紙學特論 | Special Topics in Pulping and Papermaking | M | | A | S | 3 | 3-100 | 2 | Department of Forestry | 2011-S2 name update |
| 生態氣候學與復育生態學特論 | Special Topics on Ecoclimatology and Restoration Ecology | M | | A | S | 2 | 1-100 | 1 | Department of Forestry | 2010-S1 newly opened |
| 天然資源評估法 | Natural Resources Assessment | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 高等遙測影像分析 | Advanced Digital Image Analysis | M | | A | S | 3 | 2-100 | 2 | Department of Forestry |  |
| 林木生長收穫學特論 | Special Topics in Growth and Yield | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 資源多變量分析 | Resources Multivariate Analysis | M | | A | S | 3 | 2-100 | 2 | Department of Forestry |  |
| 數位遙測影像分析 | Digital Remote Sensing Imagery Analysis | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 高等數位地圖學 | Advanced Digital Cartography | M | | A | S | 3 | 2-100 | 2 | Department of Forestry |  |
| 森林經理學研究法 | Research Methods of Forest Management | M | | A | S | 2 | 2-100 | 1 | Department of Forestry |  |
| 數位資源資訊系統 | Digital Resources Information System | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 高等森林測計學 | Advanced Forest Measuration | M | | A | S | 3 | 2-100 | 2 | Department of Forestry |  |
| 林業經濟學特論 | Special Topics in Forestry Economics | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 林業政策及法規研究法 | Research Methods in Forest Policy and Law | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 數量森林經營學 | Quantitative Approaches to Forest Management | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 資源遙感探測 | Remote Sensing of Natural Resources | M | | A | S | 3 | 2-100 | 1 | Department of Forestry |  |
| 森林生態生理學 | Forest Ecophysiology | M | | A | S | 3 | 1-100 | 2 | Department of Forestry |  |
| 生態生理學專題實驗 | Special Topics in Eco-Physiological Experiment | M | | AB | S | 3 | 1-100 | 2 | Department of Forestry |  |
| 森林生態調查與分析 | Methods of Forest Vegetation Ecology | M | | A | S | 3 | 1-80,2-20 | 1 | Department of Forestry |  |
| 現代育林問題 | Issues in Contemporary Silviculture | M | | A | S | 2 | 1-100 | 1 | Department of Forestry |  |
| 森林美學特論 | Special Topics in Forest Esthetics | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 林木育種學特論 | Special Topics in Forest Tree Breeding | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 樹木學特論 | Special Topics in Dendrology | M | | A | S | 3 | 1-100 | 2 | Department of Forestry |  |
| 森林生態學特論 | Special Topics in Forest Ecology | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 育林學特論 | Special Topics in Silviculture | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 林木遺傳學特論 | Special Topics in Forest Genetics | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 林木遺傳參數估計 | Estimation of Genetics Parameters in Forest Trees | M | | AB | S | 3 | 1-100 | 2 | Department of Forestry |  |
| 自然資源遺傳保育 | Genetic Conservation of Natural Resources | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 林木遺傳育種研究法 | Research Methods of Forest Genetics and Breeding | M | | C | S | 2 | 1-100 | 1 | Department of Forestry |  |
| 森林土壤學特論 | Special Topics in Forest Soil Science | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 林木菌根研究 | Tree Mycorrhizal Research | M | | A | S | 3 | 1-100 | 2 | Department of Forestry |  |
| 木材化學特論 | Special Topics in Wood Chemistry | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材抽出物 | Wood Extractives | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 纖維素化學 | Cellulose Chemistry | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材性質學特論 | Special Topics in Wood Properties | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 紙張性質學特論 | Special Topics in Paper Properties | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材加工學特論 | Special Topics in Wood Processing | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材利用學特論 | Special Topics in Wood Utilization | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材膠合原理 | Theory of Wood Adhesions | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 生物質木材膠合劑 | Biomass Wood Adhesives | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材膠合劑性能檢定原理 | Testing Theory for Performance of Wood Adhesives | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木質材料學特論 | Special Topics in Wood-Based Materials | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 樹脂化學 | Resin Chemistry | M | | A | S | 3 | 3-100 |  | Department of Forestry |  |
| 改良木材學特論 | Special Topics in Improved Wood | M | | A | S | 3 | 3-100 |  | Department of Forestry |  |
| 生物質能源及化學利用特論 | Special Topics on Biomass Energy and Chemicals | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 再生性資源製造膠合劑 | Adhesives from Renewable Resources | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材塗料學特論 | Special Topics in Wood Coatings | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材改質及保存學特論 | Special Topics in Wood Modification and Preservation | M | | A | S | 3 | 3-100 | 1 | Department of Forestry | 2015-S1 name change |
| 資源調查與測計文獻研讀 | Review of Literature in Forest Inventory and Mensuration | M | | C | Y | 2 | 2-100 | 2 | Department of Forestry |  |
| 遙測及地理資訊文獻研讀 | Review of Literature in Remote Sensing and Geographical Information Science | M | | C | Y | 2 | 2-100 | 2 | Department of Forestry |  |
| 森林植物分類文獻研讀 | Review of Literature in Taxnomy of Forest Plants | M | | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 森林生態森林文獻研讀 | Review of Literature in Forest Ecology | M | | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 育林文獻研讀 | Review of Literature in Silviculture | M | | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 森林文獻研讀 | Review of Literature in Forestry | M | | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 造紙文獻研讀 | Review of Literature in Paper Making | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 木質材料文獻研讀 | Review of Literature in Wood-Based Materials | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 木材乾燥與鑑別文獻研讀 | Review of Literature in Wood Drying and Identification | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 再生性資源與膠合劑文獻研讀 | Review of Literature in Biocomposites and Adhesives | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 家具製造與木材塗裝文獻研讀 | Review of Literature in Furniture Making and Wood Finishing | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 林產文獻研讀 | Review of Literature in Forest Products | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 森林化學文獻研讀 | Review of Literature in Tree Chemistry | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 森林水化學與養分循環文獻研讀 | Review of Literature in Water Chemistry and Nutrient Cycling in Forest | M | | C | Y | 2 | 1-100 | 2 | Department of Forestry |  |
| 生質能源文獻研讀 | Review of Literature in Biomass Energy | M | | C | Y | 2 | 3-100 | 2 | Department of Forestry |  |
| 森林遊樂文獻研讀 | Review of Literature in Forest Recreation | M | | C | Y | 2 | 2-100 | 2 | Department of Forestry | 2008-S1 newly opened |
| 林產產業分析與營運評估 | Analysis and Operation Evaluation of Forest Products Industry | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 木材比較解剖學 | Comparative Wood Anatomy | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 森林生態系的生物地質化學 | Biogeochemistry in Forest Ecosystem | M | | A | S | 2 | 1-100 | 2 | Department of Forestry |  |
| 生態系經營學 | Ecosystem Management | M | | A | S | 2 | 1-100 | 2 | Department of Forestry |  |
| 野生動物棲息地經營 | Wildlife Habitat Management | M | | A | S | 3 | 1-100 | 1 | Department of Forestry |  |
| 植物多酚成份 | Plant Polyphenol | M | | A | S | 2 | 3-100 | 2 | Department of Forestry |  |
| 森林化學儀器分析 | Instrumental Analysis of Forestry Chemistry | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 林木代謝產物生物活性研究法 | Methods in Bioactivities Analysis of Metabolites from Woody Plants | M | | A | S | 2 | 3-100 | 2 | Department of Forestry |  |
| 濱水區經營 | Riparian Management | M | | A | S | 2 | 2-100 | 1 | Department of Forestry |  |
| 植物代謝體學 | Plant Metabonomics | M | | A | S | 2 | 3-100 | 2 | Department of Forestry |  |
| 植物代謝體學分析技術 | Methods in Plant Metabonomics | M | | B | S | 2 | 3-100 | 2 | Department of Forestry |  |
| 植物生物反應器 | Plant Bioreactor | M | | AB | S | 2 | 3-100 | 2 | Department of Forestry |  |
| 木材物理學特論 | Special Topics in Wood Physics | M | | A | S | 2 | 3-100 | 1 | Department of Forestry |  |
| 生質物氣化程序 | Biomass Gasification Process | M | | A | S | 3 | 5-100 | 1 | Department of Forestry | 2022-M5: available to both MSc and Bachelor |
| 生質物精煉程序 | Biomass Refinery Process | M | | A | S | 3 | 3-100 | 1 | Department of Forestry | 2008-S1 newly opened |
| 造紙化學特論 | Special Topics in Paper Chemistry | M | | A | S | 3 | 3-100 | 1 | Department of Forestry |  |
| 造紙學特論 | Special Topics on Papermaking Science | M | | A | S | 3 | 3-100 | 2 | Department of Forestry |  |
| 遊憩與公園遊客管理 | Visitor Management in Parks and Recreation | M | | A | S | 3 | 2-100 | 1 | Department of Forestry | 2008-S1 newly opened |