From:	Smith, Randy
To:	Coifman, Benjamin
Cc:	Sutherland, Sue; Reed, Katie; Smith, Randy; Fierce, Jacquelyn; Greenbaum, Rob; Duffy, Lisa; Hunt, Ryan; MacKay, Allison; Quinzon-Bonello, Rosario; Tomasko, David
Subject:	Proposal to revise the Master of Science in Civil Engineering
Date:	Thursday, January 23, 2025 1:58:33 PM
Attachments:	image001.png

Benn,

The proposal from the Department of Civil, Environmental, and Geodetic Engineering to revise the Master of Science in Civil Engineering was approved by the Council on Academic Affairs at its meeting on January 22, 2025. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal review/approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2025).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Sue Sutherland (.43), or me.

I wish you success with this important program development.

Randy

THE OHIO STATE UNIVERSITY

W. Randy Smith, Ph.D.
Vice Provost for Academic Programs
Office of Academic Affairs
University Square South, 15 E. 15th Avenue, Columbus, OH 43201
614-292-5881 Office
smith.70@osu.edu
Assisted by:
Katie Reed
Executive Assistant
(614) 292-5672

TO: Randy Smith, Vice Provost for Academic Programs

FROM: Graduate School Curriculum Services

DATE: **11/26/2024**

RE: Proposal to **Revise the MSc in Civil Engineering in The College of Engineering.**

The **Department of Civil Engineering** in the **College of Engineering** is proposing a **Revision to the MSc in Civil Engineering**.

The proposal was received by the Graduate School on **11/07/2024**. The combined GS/CAA subcommittee first reviewed the proposal on **11/21/2024** and support its review by the Council on Academic Affairs.

THE OHIO STATE UNIVERSITY

College of Engineering

Undergraduate Education & Student Services

122 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210-1278

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Memo

To: Maria Miriti, Associate Dean of the Graduate School
From: Rosie Quinzon-Bonello, Assistant Dean for Curriculum and Assessment
Date: November 6, 2024

Re: Program Change to the **MSc** in Civil Engineering

On November 5, 2024, The College Committee for Academic Affairs in the College of Engineering unanimously approved a proposal submitted by the Civil Engineering graduate program program to revise its **MSc** in Civil Engineering.

Attached is the proposal.

Yours sincerely,

Rosario Quinzon-Bonello

THE OHIO STATE UNIVERSITY

College of Engineering

Department of Civil, Enrivonmental and
Geodetic Engineering

470 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210

(614) 292-2771 Phone

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September 17, 2024

To: College Committee for Academic Affairs
Re: CIVENG-MS Curriculum Update Proposal

The Civil, Environmental and Geodetic Engineering (CEGE) department recently completed a multi-year effort to revise our graduate program, including updates to both curricular and co-curricular activities. We seek approval for the proposed curricular revisions to be effective starting **Autumn 2025** when our revisions to co-curricular activities (outlined in our program's newly approved graduate studies handbook) will also go into effect.

Summary of Proposed Curricular Changes to CIVENG-MS:

Previous requirements:	Proposed requirements:
Unchanged course options: • Table A coursework (6 credits) • Table B coursework (6 credits) Can also include excess Table A credits • Electives (Balance required to achieve total of 30/33 for thesis/non-thesis)	Unchanged course options: • Table A coursework (6 credits) • Table B coursework (6 credits) Can also include excess Table A credits • Electives (Balance required to achieve total of 30/33 for thesis/non-thesis)
Math • 3 credits from approved list by track	New title: Data Analysis • 3 credits from expanded list
Thesis Option • 6999 Research (6 credits)	Thesis Option • 6999 Research (6 credits) • New requirement: 6880 Semiar (2 credits)

The newly proposed curriculum consists of two minor curricular changes. The requirement formerly referred to as **Math** will be changed to Data Analysis to reflect an expanded definition of the types of courses that can meet this requirement. Each graduate track will update their lists of courses to include those that meet the expanded requirement.

The second change is the addition of the **Seminar** requirement. Students pursuing the MS thesis option will take our existing 1 credit hour course CIVILEN 6880 Civil Engineering Graduate Seminar for the first 2 semesters of enrollment in the program. The seminar course is intended to support skill development aligned with proficiencies students are expected to meet during their time in our graduate program. Requiring incoming students to register for the seminar course provides a structured environment to support student success in research endeavors. Non-thesis students are allowed to take the seminar for credit but because a large portion of the seminar is focused on research, non-thesis students are not required to take it.

We calculate the percentage of change to our degree requirements to be 17% for thesis and 9% for non-thesis. Of the 30 credit thesis degree, this proposal includes changes to 5 credits: 2 newly required seminar credits, and a change to the elective options in Math -> Data Analysis for 3 credits. Of the 33 credit non-thesis degree, this proposal includes changes to the 3 credits of elective options in Math -> Data Analysis.

Students joining the program on or after the effective start date will proceed with the new program. The transition plan for students currently enrolled in CIVENG-MS is to meet with their faculty advisor to determine if they will continue the previous program curriculum or transition to the new program. Thesis students who have been enrolled for more than 2 semesters will not be required to complete the new seminar requirement.

Sincerely,

Benjamin Coifman

Professor Benjamin Coifman

Graduate Studies Chair

Civil, Environmental and Geodetic Engineering

CIVENG-MS Current

Master of Science (MS) in Civil Engineering, Degree Requirements across tracks/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

Math (at least 3 credits)

Course number	Course Title	Credits
Varies by track	Varies by track	varies

*Can be used to meet the MATH or Table A requirement, but not both.
**Can be used to meet the MATH or Table B requirement, but not both.

Master's Thesis Option (at least 6 hours)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS Markup

Master of Science (MS) in Civil Engineering, Degree Requirements across tracks/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

~~**Math**~~ **Data Analysis** (at least 3 credits)

Course number	Course Title	Credits
Varies by track	Varies by track	varies

*Can be used to meet the MATH or Table A requirement, but not both.
**Can be used to meet the MATH or Table B requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS Proposed

Master of Science (MS) in Civil Engineering, Degree Requirements across tracks/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Varies by track	Varies by track	varies
Varies by track	Varies by track	varies

Data Analysis (at least 3 credits)

Course number	Course Title	Credits
Varies by track	Varies by track	varies

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

CIVENG-MS ENV Current

Master of Science (MS) in Civil Engineering, Environmental Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5130	Applied Hydrology	3
CIVILEN/Math 5168	Introduction to the Finite Element Method	3
CIVILEN 5220	Open Channel Hydraulics	3
CIVILEN 5230	Transport Phenomena in Water Resources Engineering	3
CIVILEN 6210	Physics of Sustainable Buildings	3
CIVILEN 6220	Water Resources Systems Analysis	3
ENVENG 5110	Environmental Engineering Bioprocesses	3
ENVENG 6218	Measurement & Modeling of Climate Change	3
ENVENG 5120	Bioremediation of Soil and Groundwater	3
ENVENG 5170	Sustainability & Pollution Prevention Practices	3
ENVENG 5195	Engineering Design for Environmental Health	3
ENVENG 5210	Advanced Physical Chemical Treatment Processes	3
FABENG 5310	Ecological Engineering and Science	3
ENVENG 5760	Design of Urban Stormwater Control Measures	3
FABENG 5820	Environmental Controls and Air Quality	3
ENVENG 5850	Advanced Topics in Environmental Engineering	1
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 6100	Environmental Engineering Analytical Methods	3
ENVENG 6200	Fundamentals of Environmental Engineering	3
ENVENG 6210	Environmental Engineering Unit Operations	3
CIVILEN 6211	Simulation of Building Energy Performance	3
ENVENG 6220	Data Analysis in Environmental Engineering	3
CIVILEN 6230	Numerical Models in Water Resources Engineering	3
CIVILEN 6240	Water Resources Systems Analysis	3
ENVENG 6400	Integrated Environmental Chemical Fate and Transport	3
ENVENG 7220	Colloidal and Interfacial Processes in Aquatic Systems	3
CIVILEN 7453	Photogrammetric Computer Vision	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CBE 5771	Air Pollution	3
CBE 5772	Principles of Sustainable Engineering	3
CBE 5779	Design and Analysis of Experiments	3
CHEM 4300	Physical Chemistry I	3
CHEM 4310	Physical Chemistry II	3
CHEM 6530	Kinetics	1.5
CHEM 6550	Atmospheric Chemistry	3
EARTHSC/MICRBIO 5160	Geomicrobiology	3

EARTHSC 5651	Hydrogeology	4
EARTHSC 5718	Aquatic Geochemistry	3
EARTHSC 5719	Environmental Organic Geochemistry	3
EARTHSC 5751	Quantitative Reservoir Modeling	4
ECE 5042/5043	Power Systems	3
ECE 6541	Advanced Topics in Sustainable Energy and Power Sys.	3
EEOB 5420	Aquatic Ecosystems – Ecology of Inland Waters	1.5 - 4.0
EEOB 6210	Ecotoxicology	2 - 4
ENVENG/PUBAFRS 5600	Science, Engineering, and Public Policy	3
ENVENG/ISE/FABE 6020	Fundamentals of Data-Driven Energy Systems	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENR 5274	Ecosystems Simulation	2
ENR 7520	Environmental Science and Law	3
LAW 8310	Energy Law	3
FABENG 5310	Ecological Engineering and Science	3
MECHENG 4510	Heat Transfer	3
MECHENG 5372	Theory and Applications of Feedback Control	3
MECHENG 5541	Heating, Ventilating, and Air Conditioning	3
MECHENG 6510	Intermediate Heat Transfer	3
MICRBIO 4000	Basic and Practical Microbiology	4
MICRBIO 4100	General Microbiology	5
MICRBIO 5155	Environmental Microbiology	3
STAT 5301	Intermediate Data Analysis I	4

Math (at least 3 credits)

Course number	Course Title	Credits
ENVENG 6220*	Water Resources Systems Analysis	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

*ENVENG 6220 can be used to meet the MATH or Table A requirement, but not both.

**STAT 5301 can be used to meet the MATH or Table B requirement, but not both.

Master's Research (thesis option only, at least 6 hours)

Course number	Course Title	Credits
CIVILEN/ENVENG 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN/ENVENG 6193.

CIVENG-MS ENV Markup

Master of Science (MS) in Civil Engineering, Environmental Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5130	Applied Hydrology	3
CIVILEN/Math 5168	Introduction to the Finite Element Method	3
CIVILEN 5220	Open Channel Hydraulics	3
CIVILEN 5230	Transport Phenomena in Water Resources Engineering	3
CIVILEN 6210	Physics of Sustainable Buildings	3
CIVILEN 6220	Water Resources Systems Analysis	3
ENVENG 5110	Environmental Engineering Bioprocesses	3
ENVENG 6218	Measurement & Modeling of Climate Change	3
ENVENG 5120	Bioremediation of Soil and Groundwater	3
ENVENG 5170	Sustainability & Pollution Prevention Practices	3
ENVENG 5195	Engineering Design for Environmental Health	3
ENVENG 5210	Advanced Physical Chemical Treatment Processes	3
FABENG 5310	Ecological Engineering and Science	3
ENVENG 5760	Design of Urban Stormwater Control Measures	3
FABENG 5820	Environmental Controls and Air Quality	3
ENVENG 5850	Advanced Topics in Environmental Engineering	1
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 6100	Environmental Engineering Analytical Methods	3
ENVENG 6200	Fundamentals of Environmental Engineering	3
ENVENG 6210	Environmental Engineering Unit Operations	3
CIVILEN 6211	Simulation of Building Energy Performance	3
ENVENG 6220	Data Analysis in Environmental Engineering	3
CIVILEN 6230	Numerical Models in Water Resources Engineering	3
CIVILEN 6240	Water Resources Systems Analysis	3
ENVENG 6400	Integrated Environmental Chemical Fate and Transport	3
ENVENG 7220	Colloidal and Interfacial Processes in Aquatic Systems	3
CIVILEN 7453	Photogrammetric Computer Vision	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CBE 5771	Air Pollution	3
CBE 5772	Principles of Sustainable Engineering	3
CBE 5779	Design and Analysis of Experiments	3
CHEM 4300	Physical Chemistry I	3
CHEM 4310	Physical Chemistry II	3
CHEM 6530	Kinetics	1.5
CHEM 6550	Atmospheric Chemistry	3
EARTHSC/MICRBIO 5160	Geomicrobiology	3

EARTHSC 5651	Hydrogeology	4
EARTHSC 5718	Aquatic Geochemistry	3
EARTHSC 5719	Environmental Organic Geochemistry	3
EARTHSC 5751	Quantitative Reservoir Modeling	4
ECE 5042/5043	Power Systems	3
ECE 6541	Advanced Topics in Sustainable Energy and Power Sys.	3
EEOB 5420	Aquatic Ecosystems – Ecology of Inland Waters	1.5 - 4.0
EEOB 6210	Ecotoxicology	2 - 4
ENVENG/PUBAFRS 5600	Science, Engineering, and Public Policy	3
ENVENG/ISE/FABE 6020	Fundamentals of Data-Driven Energy Systems	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENR 5274	Ecosystems Simulation	2
ENR 7520	Environmental Science and Law	3
LAW 8310	Energy Law	3
FABENG 5310	Ecological Engineering and Science	3
MECHENG 4510	Heat Transfer	3
MECHENG 5372	Theory and Applications of Feedback Control	3
MECHENG 5541	Heating, Ventilating, and Air Conditioning	3
MECHENG 6510	Intermediate Heat Transfer	3
MICRBIO 4000	Basic and Practical Microbiology	4
MICRBIO 4100	General Microbiology	5
MICRBIO 5155	Environmental Microbiology	3
STAT 5301	Intermediate Data Analysis I	4

~~Math~~ Data Analysis (at least 3 credits)

Course number	Course Title	Credits
ENVENG 6220*	Water Resources Systems Analysis	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

*ENVENG 6220 can be used to meet the MATH or Table A requirement, but not both.

**STAT 5301 can be used to meet the MATH or Table B requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS ENV Proposed

Master of Science (MS) in Civil Engineering, Environmental Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5130	Applied Hydrology	3
CIVILEN/Math 5168	Introduction to the Finite Element Method	3
CIVILEN 5220	Open Channel Hydraulics	3
CIVILEN 5230	Transport Phenomena in Water Resources Engineering	3
CIVILEN 6210	Physics of Sustainable Buildings	3
CIVILEN 6220	Water Resources Systems Analysis	3
ENVENG 5110	Environmental Engineering Bioprocesses	3
ENVENG 6218	Measurement & Modeling of Climate Change	3
ENVENG 5120	Bioremediation of Soil and Groundwater	3
ENVENG 5170	Sustainability & Pollution Prevention Practices	3
ENVENG 5195	Engineering Design for Environmental Health	3
ENVENG 5210	Advanced Physical Chemical Treatment Processes	3
FABENG 5310	Ecological Engineering and Science	3
ENVENG 5760	Design of Urban Stormwater Control Measures	3
FABENG 5820	Environmental Controls and Air Quality	3
ENVENG 5850	Advanced Topics in Environmental Engineering	1
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 6100	Environmental Engineering Analytical Methods	3
ENVENG 6200	Fundamentals of Environmental Engineering	3
ENVENG 6210	Environmental Engineering Unit Operations	3
CIVILEN 6211	Simulation of Building Energy Performance	3
ENVENG 6220	Data Analysis in Environmental Engineering	3
CIVILEN 6230	Numerical Models in Water Resources Engineering	3
CIVILEN 6240	Water Resources Systems Analysis	3
ENVENG 6400	Integrated Environmental Chemical Fate and Transport	3
ENVENG 7220	Colloidal and Interfacial Processes in Aquatic Systems	3
CIVILEN 7453	Photogrammetric Computer Vision	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CBE 5771	Air Pollution	3
CBE 5772	Principles of Sustainable Engineering	3
CBE 5779	Design and Analysis of Experiments	3
CHEM 4300	Physical Chemistry I	3
CHEM 4310	Physical Chemistry II	3
CHEM 6530	Kinetics	1.5
CHEM 6550	Atmospheric Chemistry	3
EARTHSC/MICRBIO 5160	Geomicrobiology	3

EARTHSC 5651	Hydrogeology	4
EARTHSC 5718	Aquatic Geochemistry	3
EARTHSC 5719	Environmental Organic Geochemistry	3
EARTHSC 5751	Quantitative Reservoir Modeling	4
ECE 5042/5043	Power Systems	3
ECE 6541	Advanced Topics in Sustainable Energy and Power Sys.	3
EEOB 5420	Aquatic Ecosystems – Ecology of Inland Waters	1.5 - 4.0
EEOB 6210	Ecotoxicology	2 - 4
ENVENG/PUBAFRS 5600	Science, Engineering, and Public Policy	3
ENVENG/ISE/FABE 6020	Fundamentals of Data-Driven Energy Systems	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENR 5274	Ecosystems Simulation	2
ENR 7520	Environmental Science and Law	3
LAW 8310	Energy Law	3
FABENG 5310	Ecological Engineering and Science	3
MECHENG 4510	Heat Transfer	3
MECHENG 5372	Theory and Applications of Feedback Control	3
MECHENG 5541	Heating, Ventilating, and Air Conditioning	3
MECHENG 6510	Intermediate Heat Transfer	3
MICRBIO 4000	Basic and Practical Microbiology	4
MICRBIO 4100	General Microbiology	5
MICRBIO 5155	Environmental Microbiology	3
STAT 5301	Intermediate Data Analysis I	4

Data Analysis (at least 3 credits)

Course number	**Course Title**	**Credits**
ENVENG 6220	Water Resources Systems Analysis	3
STAT 4201 or above	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

CIVENG-MS GEO Current

Master of Science (MS) in Civil Engineering, Geoinformation and Geodetic Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 5441	Introduction to GPS: theory and applications	3
CIVILEN 5461	Geospatial Numerical Analysis	4
CIVILEN 6431	GIS and Cartographic Engineering	4
CIVILEN 6435	Global Navigation Satellite Systems (GNSS) Data Processing	3
CIVILEN 6451	Introduction to photogrammetry	4
CIVILEN 7421	Advanced Remote Sensing and Machine Learning	3
CIVILEN 7432	Advanced spatial data structures and databases	4
CIVILEN 7433	GIS Analysis and projects	3
CIVILEN 7442	Fundamentals of GPS and Reference Systems	4
CIVILEN 7452	Spatial Geometry and Spectral Analysis	4
CIVILEN 7453	Photogrammetric computer vision	3
CIVILEN 7461	Advanced geospatial numerical analysis	3
CIVILEN 8420	Radiometric measurements and modeling	3
CIVILEN 8421	Integrating Remote Sensing with Engineering Databases	3
CIVILEN 8434	Advanced planetary mapping and exploration	3
CIVILEN 8443	Advanced topics in GPS	3
CIVILEN 8454	Videogrammetry	3
CIVILEN 8462	Advanced geospatial sensors and methods	3
GEOSCIM 5637	Topics in Mapping	3
GEOSCIM 5652	Adjustment Computations	5
GEOSCIM 6786	Geospatial Data Structures for Computer Mapping and GIS	3
GEOSCIM 7745	Inertial Navigation/Positioning Analysis	4
GEOSCIM 7765	Analysis and Design of Geodetic Networks	2
GEOSCIM 8871	Advanced Physical Geodesy	3
GEOSCIM 8873	Advanced Satellite Geodesy	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5524	Computer Vision for Human-Computer Interaction	3
EARTHSC 5642	Geomathematical Analysis	3
ECE 5460	Image Processing	3
ECE 6001	Probability and Random Variables	3
ECE 7001	Stochastic Processes, Detection, and Estimation	3
ECE 7866	Computer Vision and Multisensor Integration	3
GEOSCIM 5660	Geometric Reference Systems	4

GEOSCIM 6776	Physical Geodesy	4
GEOSCIM 7763	Advanced Adjustment Computations	4
GEOSCIM 8862	Adjustment Computations for Random Processes	2
MATH 4568	Linear Algebra for Engineering Graduate Students	3
MATH 4578	Discrete Mathematical Models	4
MATH 5601	Essentials of Numerical Methods	3
MATH 5602	Computational Partial Differential Equations	3
MATH 5603	Numerical Linear Algebra	3
MATH 6601	Numerical Methods in Scientific Computing I	4
MATH 6602	Numerical Methods in Scientific Computing II	4
STAT 6450	Applied Regression Analysis	4
STAT 6540	Applied Stochastic Processes	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3
STAT 6570	Applied Bayesian Analysis	2
STAT 6950	Applied Statistics II	4

Math (at least 3 credits)

Coursework can be selected from Table B MATH or STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Research (thesis option only, at least 6 hours)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS GEO Markup

Master of Science (MS) in Civil Engineering, Geoinformation and Geodetic Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 5441	Introduction to GPS: theory and applications	3
CIVILEN 5461	Geospatial Numerical Analysis	4
CIVILEN 6431	GIS and Cartographic Engineering	4
CIVILEN 6435	Global Navigation Satellite Systems (GNSS) Data Processing	3
CIVILEN 6451	Introduction to photogrammetry	4
CIVILEN 7421	Advanced Remote Sensing and Machine Learning	3
CIVILEN 7432	Advanced spatial data structures and databases	4
CIVILEN 7433	GIS Analysis and projects	3
CIVILEN 7442	Fundamentals of GPS and Reference Systems	4
CIVILEN 7452	Spatial Geometry and Spectral Analysis	4
CIVILEN 7453	Photogrammetric computer vision	3
CIVILEN 7461	Advanced geospatial numerical analysis	3
CIVILEN 8420	Radiometric measurements and modeling	3
CIVILEN 8421	Integrating Remote Sensing with Engineering Databases	3
CIVILEN 8434	Advanced planetary mapping and exploration	3
CIVILEN 8443	Advanced topics in GPS	3
CIVILEN 8454	Videogrammetry	3
CIVILEN 8462	Advanced geospatial sensors and methods	3
GEOSCIM 5637	Topics in Mapping	3
GEOSCIM 5652	Adjustment Computations	5
GEOSCIM 6786	Geospatial Data Structures for Computer Mapping and GIS	3
GEOSCIM 7745	Inertial Navigation/Positioning Analysis	4
GEOSCIM 7765	Analysis and Design of Geodetic Networks	2
GEOSCIM 8871	Advanced Physical Geodesy	3
GEOSCIM 8873	Advanced Satellite Geodesy	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5524	Computer Vision for Human-Computer Interaction	3
EARTHSC 5642	Geomathematical Analysis	3
ECE 5460	Image Processing	3
ECE 6001	Probability and Random Variables	3
ECE 7001	Stochastic Processes, Detection, and Estimation	3
ECE 7866	Computer Vision and Multisensor Integration	3
GEOSCIM 5660	Geometric Reference Systems	4

GEOSCIM 6776	Physical Geodesy	4
GEOSCIM 7763	Advanced Adjustment Computations	4
GEOSCIM 8862	Adjustment Computations for Random Processes	2
MATH 4568	Linear Algebra for Engineering Graduate Students	3
MATH 4578	Discrete Mathematical Models	4
MATH 5601	Essentials of Numerical Methods	3
MATH 5602	Computational Partial Differential Equations	3
MATH 5603	Numerical Linear Algebra	3
MATH 6601	Numerical Methods in Scientific Computing I	4
MATH 6602	Numerical Methods in Scientific Computing II	4
STAT 6450	Applied Regression Analysis	4
STAT 6540	Applied Stochastic Processes	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3
STAT 6570	Applied Bayesian Analysis	2
STAT 6950	Applied Statistics II	4

~~Math~~ Data Analysis (at least 3 credits)

Coursework can be selected from Table B MATH or STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS GEO Proposed

Master of Science (MS) in Civil Engineering, Geoinformation and Geodetic Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 5441	Introduction to GPS: theory and applications	3
CIVILEN 5461	Geospatial Numerical Analysis	4
CIVILEN 6431	GIS and Cartographic Engineering	4
CIVILEN 6435	Global Navigation Satellite Systems (GNSS) Data Processing	3
CIVILEN 6451	Introduction to photogrammetry	4
CIVILEN 7421	Advanced Remote Sensing and Machine Learning	3
CIVILEN 7432	Advanced spatial data structures and databases	4
CIVILEN 7433	GIS Analysis and projects	3
CIVILEN 7442	Fundamentals of GPS and Reference Systems	4
CIVILEN 7452	Spatial Geometry and Spectral Analysis	4
CIVILEN 7453	Photogrammetric computer vision	3
CIVILEN 7461	Advanced geospatial numerical analysis	3
CIVILEN 8420	Radiometric measurements and modeling	3
CIVILEN 8421	Integrating Remote Sensing with Engineering Databases	3
CIVILEN 8434	Advanced planetary mapping and exploration	3
CIVILEN 8443	Advanced topics in GPS	3
CIVILEN 8454	Videogrammetry	3
CIVILEN 8462	Advanced geospatial sensors and methods	3
GEOSCIM 5637	Topics in Mapping	3
GEOSCIM 5652	Adjustment Computations	5
GEOSCIM 6786	Geospatial Data Structures for Computer Mapping and GIS	3
GEOSCIM 7745	Inertial Navigation/Positioning Analysis	4
GEOSCIM 7765	Analysis and Design of Geodetic Networks	2
GEOSCIM 8871	Advanced Physical Geodesy	3
GEOSCIM 8873	Advanced Satellite Geodesy	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5524	Computer Vision for Human-Computer Interaction	3
EARTHSC 5642	Geomathematical Analysis	3
ECE 5460	Image Processing	3
ECE 6001	Probability and Random Variables	3
ECE 7001	Stochastic Processes, Detection, and Estimation	3
ECE 7866	Computer Vision and Multisensor Integration	3
GEOSCIM 5660	Geometric Reference Systems	4

GEOSCIM 6776	Physical Geodesy	4
GEOSCIM 7763	Advanced Adjustment Computations	4
GEOSCIM 8862	Adjustment Computations for Random Processes	2
MATH 4568	Linear Algebra for Engineering Graduate Students	3
MATH 4578	Discrete Mathematical Models	4
MATH 5601	Essentials of Numerical Methods	3
MATH 5602	Computational Partial Differential Equations	3
MATH 5603	Numerical Linear Algebra	3
MATH 6601	Numerical Methods in Scientific Computing I	4
MATH 6602	Numerical Methods in Scientific Computing II	4
STAT 6450	Applied Regression Analysis	4
STAT 6540	Applied Stochastic Processes	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3
STAT 6570	Applied Bayesian Analysis	2
STAT 6950	Applied Statistics II	4

Data Analysis (at least 3 credits)

Coursework can be selected from Table B MATH or STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

CIVENG-MS GEOT

Master of Science (MS) in Civil Engineering, Geotechnical Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 5581	Numerical Methods in Geotechnical Engineering	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 6300	Structural Dynamics	3
EARTHSC 5651	Hydrogeology	4

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 5120	Bioremediation of Soil and Groundwater	3
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 7453	Photogrammetric Computer Vision	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 7770	Infrastructure Systems Analysis	3
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 6451	Introduction to Photogrammetry	4

Alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3
ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2

Math (at least 3 credits)

Course number	**Course Title**	**Credits**
ENVENG 6220*	Water Resources Systems Analysis	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

*ENVENG 6220 can be used to meet the MATH or Table A requirement, but not both.

**STAT 5301 can be used to meet the MATH or Table B requirement, but not both.

Master's Research (thesis option only, at least 6 hours)

Course number	Course Title	Credits
CIVILEN/ENVENG 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN/ENVENG 6193.

CIVENG-MS GEOT Markup

Master of Science (MS) in Civil Engineering, Geotechnical Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 5581	Numerical Methods in Geotechnical Engineering	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 6300	Structural Dynamics	3
EARTHSC 5651	Hydrogeology	4

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 5120	Bioremediation of Soil and Groundwater	3
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 7453	Photogrammetric Computer Vision	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 7770	Infrastructure Systems Analysis	3
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 6451	Introduction to Photogrammetry	4

Alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3
ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2

~~**Math**~~ **Data Analysis** (at least 3 credits)

Course number	**Course Title**	**Credits**
ENVENG 6220*	Water Resources Systems Analysis	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

*ENVENG 6220 can be used to meet the MATH or Table A requirement, but not both.

**STAT 5301 can be used to meet the MATH or Table B requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS GEOT Proposed

Master of Science (MS) in Civil Engineering, Geotechnical Engineering graduate track/specialization

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 5581	Numerical Methods in Geotechnical Engineering	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 6300	Structural Dynamics	3
EARTHSC 5651	Hydrogeology	4

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Rock Mechanics, Slope Stability and Retaining Structures	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
CIVILEN 5880	Civil Engineering Departmental Seminar	1
ENVENG 5120	Bioremediation of Soil and Groundwater	3
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 7453	Photogrammetric Computer Vision	3
ENR 5262	Soil Chemical Processes and Environmental Quality	3
ENR 5273	Env. Fate and Impact of Contaminants in Soil & Water	3
ENVENG 6610	Analytic Frameworks for Science, Eng. And Policy	3
ENGR 7710	Engineering Research and Communication	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 7770	Infrastructure Systems Analysis	3
CIVILEN 5420	Remote Sensing of Environment	3
CIVILEN 5421	Spatial Analysis Techniques for Civil Engineering	3
CIVILEN 6451	Introduction to Photogrammetry	4

Alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3
ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2

Data Analysis (at least 3 credits)

Course number	**Course Title**	**Credits**
ENVENG 6220	Water Resources Systems Analysis	3
STAT 4201 or above	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

CIVENG-MS STR Current

Master of Science (MS) in Civil Engineering, Structural Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Principles of Soil and Rock Mechanics	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
Possible alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3

ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2
STAT 6450	Applied Regression Analysis	4
STAT 6520	Applied Statistical Analysis with Missing Data	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3

Math (at least 3 credits)

Course number	**Course Title**	**Credits**
CIVILEN 5168*	Introduction to Finite Element Analysis	3
CIVILEN 6300*	Structural Dynamics	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above**	Specific course selected in consultation with advisor	3

*CIVILEN 5168 and 6300 can be used to meet the MATH or Table A requirement, but not both.

**STAT/MATH courses can be used to meet the Math or Table B requirement, but not both.

Master's Thesis Option (at least 6 hours)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS STR Markup

Master of Science (MS) in Civil Engineering, Structural Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Principles of Soil and Rock Mechanics	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
Possible alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3

ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2
STAT 6450	Applied Regression Analysis	4
STAT 6520	Applied Statistical Analysis with Missing Data	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3

~~Math~~ Data Analysis (at least 3 credits)

Course number	**Course Title**	**Credits**
CIVILEN 5168*	Introduction to Finite Element Analysis	3
CIVILEN 6300*	Structural Dynamics	3
STAT 4201 or above**	Specific course selected in consultation with advisor	3
MATH 4512 or above**	Specific course selected in consultation with advisor	3

*CIVILEN 5168 and 6300 can be used to meet the MATH or Table A requirement, but not both.

**STAT/MATH courses can be used to meet the Math or Table B requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS STR Proposed

Master of Science (MS) in Civil Engineering, Structural Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 5168	Introduction to Finite Element Method	3
CIVILEN 5320	Intermediate Structural Steel Design	3
CIVILEN 5350	Intermediate Reinforced Concrete Design	3
CIVILEN 5360	Bridge Engineering	3
CIVILEN 5370	Prestressed Concrete Design	3
CIVILEN 6300	Structural Dynamics	3
CIVILEN 7330	Earthquake Engineering	3
CIVILEN 7350	Advanced Reinforced Concrete	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
Recommended:		
CIVILEN 5510	Durability & Cond. Assmnt of Reinforced Concrete Structures	3
CIVILEN 5561	Principles of Soil and Rock Mechanics	3
CIVILEN 5571	Principles of Foundation Analysis and Design	3
CIVILEN 6510	Advanced Concrete Materials	3
CIVILEN 7320	Structural Reliability	3
CIVILEN 8810	Construction Intelligent System and Simulation I	3
Possible alternatives:		
CONSYSM 5670	Green Building and Sustainable Construction	3
CSE 5243	Introduction to Data Mining	3
CSE 5249	Intermediate Studies in Databases	3
CSE 5361	Numerical Methods	3
CSE 5441	Introduction to Parallel Computing	3
CSE 5521	Survey of Artificial Intelligence I: Basic Techniques	3
CSE 5523	Machine Learning and Statistical Pattern Recognition	3
CSE 5526	Introduction to Neural Networks	3
CSE 5531	Introduction to Cognitive Science	3
CSE 6441	Parallel Computing	3
CSE 6449	Advanced Studies in Parallel Computing	3
CSE 6539	Advanced Studies in Artificial Intelligence	3
ECE 5551	State-Space Control Systems	3
ECE 6200	Signal Processing	3
ECE 6202	Stochastic Signal Processing	3
ECE 7854	Nonlinear and Adaptive Control	3
ECE 7858	Intelligent Control	3
ECE 7868	Pattern Recognition and Machine Learning	3
ISE 5200	Linear Optimization	3
ISE 5850	Operations Research Models and Methods	3

ISE 6200	Fundamentals of Optimization	3
ISE 6210	Integer Optimization	3
ISE 7200	Algorithms for Nonlinear Optimization	3
ISE 7210	Large Scale Optimization	3
MATH 6251	Theory of Probability I	3
MECHENG 5134	Introduction to Vibrations of Deformable Solids	3
MECHENG 5139	Applied Finite Element Method	3
MECHENG 5374	Smart Materials and Intelligent Systems	3
MECHENG 7040	Elasticity	3
MECHENG 7100	Introduction to Continuum Mechanics	3
MECHENG 7101	Constitutive Models in Continuum Mechanics	4
MECHENG 7163	Advanced Strength of Materials for Design	3
MECHENG 7250	Vibration of Discrete Systems	3
MECHENG 8038	Advanced Topics in Finite Element Method	2
MECHENG 8042	Nonlinear Finite Element Method	2
STAT 6450	Applied Regression Analysis	4
STAT 6520	Applied Statistical Analysis with Missing Data	3
STAT 6550	Statistical Analysis of Time Series	2
STAT 6560	Applied Multivariate Analysis	3

Data Analysis (at least 3 credits)

Course number	**Course Title**	**Credits**
CIVILEN 5168	Introduction to Finite Element Analysis	3
CIVILEN 6300	Structural Dynamics	3
STAT 4201 or above	Specific course selected in consultation with advisor	3
MATH 4512 or above	Specific course selected in consultation with advisor	3

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	**Course Title**	**Credits**
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

CIVENG-MS TRN Current

Master of Science (MS) in Civil Engineering, Transportation Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 7730	Transportation Demand Modeling	4
CIVILEN 7740	Urban Transportation Network Analysis	4
CIVILEN 7760	Transportation Management Systems	3
CIVILEN 7770	Infrastructure Systems Analysis	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5300	Airport Planning, Design, and Development	3
CIVILEN 5700	Urban Transportation Demand Forecasting	3
CIVILEN 5720	Transportation Engineering Data Collection Studies	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 5740	Design and Operation of Road Traffic Facilities	3
CIVILEN 5750	Instrumentation, Signals, and Control in Trn. Applications	3
CIVILEN 5760	Network Metrics and Control in Transportation Systems	3
CIVILEN 5770	Urban Public Transportation	3
CRPLAN 5600	Adv. Urban Plan Survey Collec., Mgmt. & Analysis Methods	3
GEOG 5300	Geography of Transportation	3
GEOG 5301	Sustainable Transportation	3
STAT 6201	Mathematical Statistics	4
STAT 6301	Probability for Statistical Inference	3
STAT 6450	Applied Regression Analysis (OR ECON 5410 Econometrics I)	4
ECON 5410	Econometrics I (OR STAT 6450 Applied Regression Analysis)	3

Math (at least 3 credits)

Coursework can be selected from Table B STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Thesis Option (at least 6 hours)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	1-6

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only), graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS TRN Markup

Master of Science (MS) in Civil Engineering, Transportation Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 7730	Transportation Demand Modeling	4
CIVILEN 7740	Urban Transportation Network Analysis	4
CIVILEN 7760	Transportation Management Systems	3
CIVILEN 7770	Infrastructure Systems Analysis	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5300	Airport Planning, Design, and Development	3
CIVILEN 5700	Urban Transportation Demand Forecasting	3
CIVILEN 5720	Transportation Engineering Data Collection Studies	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 5740	Design and Operation of Road Traffic Facilities	3
CIVILEN 5750	Instrumentation, Signals, and Control in Trn. Applications	3
CIVILEN 5760	Network Metrics and Control in Transportation Systems	3
CIVILEN 5770	Urban Public Transportation	3
CRPLAN 5600	Adv. Urban Plan Survey Collec., Mgmt. & Analysis Methods	3
GEOG 5300	Geography of Transportation	3
GEOG 5301	Sustainable Transportation	3
STAT 6201	Mathematical Statistics	4
STAT 6301	Probability for Statistical Inference	3
STAT 6450	Applied Regression Analysis (OR ECON 5410 Econometrics I)	4
ECON 5410	Econometrics I (OR STAT 6450 Applied Regression Analysis)	3

~~**Math**~~ **Data Analysis** (at least 3 credits)

Coursework can be selected from Table B STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Thesis Option (~~at least 6 hours~~ 8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

CIVENG-MS TRN Proposed

Master of Science (MS) in Civil Engineering, Transportation Engineering graduate track

Table A (select at least 6 hours)

Course number	Course Title	Credits
CIVILEN 7730	Transportation Demand Modeling	4
CIVILEN 7740	Urban Transportation Network Analysis	4
CIVILEN 7760	Transportation Management Systems	3
CIVILEN 7770	Infrastructure Systems Analysis	3

Table B (select at least 6 hours, can also include excess credits from Table A courses)

Course number	Course Title	Credits
CIVILEN 5001	Introduction to Geographic Information Systems	4
CIVILEN 5300	Airport Planning, Design, and Development	3
CIVILEN 5700	Urban Transportation Demand Forecasting	3
CIVILEN 5720	Transportation Engineering Data Collection Studies	3
CIVILEN 5730	Highway Location and Design	3
CIVILEN 5740	Design and Operation of Road Traffic Facilities	3
CIVILEN 5750	Instrumentation, Signals, and Control in Trn. Applications	3
CIVILEN 5760	Network Metrics and Control in Transportation Systems	3
CIVILEN 5770	Urban Public Transportation	3
CRPLAN 5600	Adv. Urban Plan Survey Collec., Mgmt. & Analysis Methods	3
GEOG 5300	Geography of Transportation	3
GEOG 5301	Sustainable Transportation	3
STAT 6201	Mathematical Statistics	4
STAT 6301	Probability for Statistical Inference	3
STAT 6450	Applied Regression Analysis (OR ECON 5410 Econometrics I)	4
ECON 5410	Econometrics I (OR STAT 6450 Applied Regression Analysis)	3

Data Analysis (at least 3 credits)

Coursework can be selected from Table B STAT courses. Any individual course can for Table B or Math requirement, but not both.

Master's Thesis Option (8 hours – 6 research + 2 seminar)

Course number	Course Title	Credits
CIVILEN 6999	Civil Engineering Research for Thesis	6 minimum
CIVILEN 6880	Civil Engineering Graduate Seminar	1 (x2)

Electives (balance required to achieve total of 30 credits for thesis option, 33 credits for non-thesis)

Coursework can be selected from Table A, Table B, Thesis Research hours (thesis only) Graduate Seminar, graduate level coursework at OSU approved by faculty advisor, and/or up to 3 credits of CIVILEN 6193.

Note: A course that conceptually meets the requirement for more than one curricular area can be used to satisfy one requirement or the other, but not both.

THE OHIO STATE UNIVERSITY

Curriculum Proposal Checklist

Title of Program: Civil Engineering MS

Effective term: Autumn 2025 **College:** Engineering

New/Establish: ☐ **Secondary Major Eligible:** ☐ **Academic Unit:** Civil, Environmental and Geodetic Engi

Revise: ☑ **50% Revision:** ☐ **Mark Up:** ☐ **Program Contact:** Benjamin Coifman

Terminate: ☐ **Suspend:** ☐ **Certificate Category*:**

Degree/Credential: Master of Science

Program of Study : Graduate Program **Title:** Civil Engineering MS

Code: CIVENG-MS

Program Focus*:

Credit hours to degree/credential: 30-33 **Is this a change to the current total?** ☐ Yes ☑ No

Program offered only online? ☐ Yes ☑ No **If yes, is there a signed MOU with ODEE?** ☐ Yes ☐ No

Campus(es) where offered: ☑ Columbus ☐ ATI ☐ Lima ☐ Mansfield ☐ Marion ☐ Newark

Rationale: The Civil, Environmental and Geodetic Engineering (CEGE) department recently completed a multi-year effort to revise our graduate program, including updates to both curricular and co-curricular activities. We seek approval for the proposed curricular revisions to be effective starting Autumn 2025 when our revisions to co-curricular activities (outlined in our program's newly approved graduate studies handbook) will also go into effect.

Student Curriculum Sheet Required: ☐

Four Year (or appropriate) Plan: ☐

Academic Unit Curriculum Committee approval date: 4/1/24

College Curriculum Committee approval date: 11/5/24

Graduate School Council approval date*:

Regional Campus approval date*:

Council on Academic Affairs approval date:

University Senate approval date*:

Board of Trustees approval date*:

ODHE approval date*:

* If applicable