The Department of Mechanical and Aerospace Engineering in the College of Engineering and the Center for Automotive Research are proposing a new specialization in Automotive Systems and Mobility in the MS and PhD in Mechanical Engineering. This transcript-designable specialization existed prior to semester conversion in a similar form. Now, it will require 12 credit hours and consist of a core course sequence, electives, regular attendance at weekly seminars on the topic, and a thesis or dissertation that will touch on the area.

The proposal was received by the Graduate School on 6 April 2018. It was reviewed by the combined GS/CAA Curriculum subcommittee, chaired by Faculty Fellow Jennifer Schlueter, on 19 April 2018, and revisions were requested. Revisions were received on 14 August 2018, and met with GS/CAA approval. The revised proposal was moved forward to the Graduate Council that same day, and reviewed and approved by the Council on 27 September 2018.
Committee on Academic Affairs  
Curriculum Subcommittee  
Graduate School  
The Ohio State University  
CAMPUS

To Whom It May Concern,

This letter provides support for the proposed Graduate Specialization in Automotive Systems and Mobility, recently submitted by Prof. Marcello Canova. This cover letter confirms that the proposed specialization was reviewed by the MAE Graduate Studies Committee during the 2018/2019 academic year. It was subsequently approved by the GSC, of which I currently serve as committee chair. The proposed specialization will help prepare the next generation of leaders in the automotive and mobility industry, putting OSU at the cutting edge of the rapidly evolving field for decades to come. The MAE department is fully behind this initiative.

The MAE point contact for the proposal is Dr. Marcello Canova. Please direct any questions to Dr. Canova, with a copy to me.

Thank you for your consideration,

Jeffrey Bons  
Professor and Associate Chair of Graduate Studies  
Department of Mechanical and Aerospace Engineering

July 18th, 2018
Contact:
Marcello Canova  
Associate Professor, Department of Mechanical and Aerospace Engineering  
Associate Director for Graduate and Continuing Education, Center for Automotive Research  

930 Kinnear Rd, Columbus, OH, 43212  
Phone: (614) 247-2336  
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Email: canova.1@osu.edu
Rationale

The Graduate Specialization in Automotive Systems and Mobility (GS-ASM) provides a unique opportunity for the MS and PhD students in the Department of Mechanical and Aerospace Engineering to acquire specialized training, unique skills and real-world experience in their area of interest, which will enhance their degree with a focus on automotive systems and smart mobility.

This program (formerly known as the Graduate Specialization in Automotive Systems Engineering) was active until the quarter to semester transition and provided a specialization to approximately 10 students per year, concurrently with earning a MS or PhD degree in Mechanical Engineering. Key features of the program are highlighted as follows:

1. The specialization is embedded into an existing degree program (MS or PhD), and does not in any way alter or supersede normal degree program graduation requirements;
2. Upon completion of the program requirements, the Graduate Specialization will be denoted on a student's transcript.

As outlined in the following sections, the program is an integrated learning experience that combines enrollment in graduate-level Mechanical Engineering courses with focus on automotive systems and mobility, participation to a series of Automotive Systems Seminars, and preparation of a thesis or dissertation on pertinent topics. With proper planning, the program can be fully integrated within coursework required for the degree.

This program is motivated by a consistently growing demand from the automotive industry for graduate students with specialized skills in automotive systems and advanced mobility. In AY2016, CAR supported 99 graduate students, which represent the target audience for this program. CAR estimates that approximately 20 students/year could apply to the GS-ASM.

To the best of the knowledge of the proposers, the GS-ASM program is a unique feature that is not offered by any other University.

This proposal aims at restoring the Graduate Specialization in Automotive Systems and Mobility (GS-ASM) program for the MS and PhD programs in the Department of Mechanical and Aerospace Engineering (MAE), and revising its management as a coordinated effort between the Center for Automotive Research (CAR), the MAE Department and the Graduate School. While this program already existed prior to the quarter to semester conversion, the objectives of this proposal are to:

1. Define the requirements and application process to the GS-ASM (Pages 3-4);
2. Establish procedures for monitoring the progress of the graduate students enrolled in this program, and specify the roles of CAR, MAE and the Graduate School (Page 3-4);
3. Update the program requirements to reflect the recent course and seminar offerings from CAR and the MAE Department, and align the specialization with the recent and upcoming automotive research and development trends (Pages 5-7);
4. Specify the facilities and staff necessary to implement and maintain the program, and describe plans to increase enrollment and retention of underrepresented groups through this program (Page 8).
PROGRAM OVERVIEW

The GS-ASM program at The Ohio State University is designed to provide a graduate level education in the engineering discipline of primary interest to the student, while focusing on the application area of automotive systems and smart mobility. Specializations are a mechanism by which degree-granting programs can have “concentration areas” denoted on a student's transcript. A specialization does not in any way alter or supersede normal degree program graduation requirements, but instead offers recognition to the interested student if he/she wishes to pursue a specialization in the form of an additional set of requirements to fulfill.

Students who complete the program requirements may elect to have the GS-ASM appear on their transcript, along with the formal name of the graduate degree program. The GS-ASM is administered by the Graduate Studies Committee of the Department of Mechanical and Aerospace Engineering (MAE), with the support and participation of the Center for Automotive Research (CAR). Parallel specializations can be established by other Academic Departments that support research and education activities related to automotive systems and mobility, in collaboration with the Center for Automotive Research.

APPLICATION AND ENROLLMENT

The specialization program is open to all graduate students admitted to one of the Graduate Programs offered by the MAE department (Mechanical Engineering, Aeronautical and Astronautical Engineering, Nuclear Engineering). Since the GS-ASM is not a degree program, students wishing to participate, under the definition of approved Graduate Specializations within the Graduate School at The Ohio State University, are required to gain admission to the graduate program of the MAE department.

To obtain information and participate to the program, students should contact the program administrator at CAR. A “program of study” plan must be formulated with the academic advisor (faculty member), normally during the first semester of study at the MS and PhD level. It is the responsibility of the student and advisor to ensure that all of the requirements of the GS-ASM, as well as those of the degree program sought, are satisfied.

The application process is described in Figure 1, and consists of the following steps:

1. Interested students can apply to the GS-ASM by completing an online application, available on the CAR website (car.osu.edu). Students will be asked to enter their personal information, name and OSU ID of the faculty advisor (name.#), expected graduation date, and upload a list the courses that they plan to use to satisfy the GS-ASM requirements (see Table 1 below). CAR will manage this phase of the process;

2. The GS-ASM program administrator at CAR will check that the courses identified by the student satisfy the GS-ASM requirements and will inform the student of acceptance into the program. CAR will manage this phase of the process;

3. During the specialization program, students are required to take a number of required Advanced Automotive Systems Seminars. Upon taking each seminar, students will be required to fill in an online questionnaire, available on the CAR website. This will allow the program administrator to track the progress of the student in fulfilling the attendance at the required seminars. CAR will manage this phase of the process;
4. Before the first Friday of the semester of graduation, the student will request the GS-ASM on gradforms.osu.edu. The program administrator at CAR will verify whether the student has completed the requirements of the GS-ASM, and notify the MAE Advising Office. **CAR will manage this phase of the process.**

5. Upon receiving notification from CAR, MAE will inform the Graduate School, who will issue the "Graduate Specialization in Automotive Systems and Mobility" on the student’s transcript. **MAE and the Graduate School will coordinate during this phase.**

---

Although the definition of a Graduate Specialization is not limited to the MS degree, the GS-ASM program has been formulated based on the typical MS program, under the assumption that departmental doctoral degree programs encompass requirements of the MS degree. In the following, therefore, the GS-ASM program is described in the context of a MS degree, **but is also available to doctoral students.**

The student, with assistance of his/her advisor, is expected to prepare a study plan that satisfies the degree course requirements (as specified by the MAE department for the ME, AAE and NE programs), as well as the GS-ASM program. Depending on whether the thesis or non-thesis option is chosen[^1], students complete one or two sequences of “core” courses chosen from the

[^1]: Doctoral students writing dissertations would satisfy the "thesis option" criteria stated for MS-only students.
core focus areas. A core sequence is defined as any two courses chosen from those indicated in
the core focus areas (see next section). The student then completes a variety of interdisciplinary
expertise area courses related to the chosen focus area. Generally speaking, relevant courses
on mathematics, statistics and computational methods qualify as expertise area courses.

The GS-ASM requirements (detailed in the next section) are:

- MS students with Thesis option (or Dissertation for PhD students) are required to take one
core sequence. It is expected that the thesis be on a topic related to automotive systems
and mobility. The Thesis option provides student with the opportunity to directly apply the
knowledge from the courses they have taken in their research activity.

- Non-thesis option students (MS only) are required to take two core sequences. The second
core course sequence is to provide students with additional coursework in the field in place
of the applied research experience one would get by pursuing the thesis option. In addition,
it is expected that the examination (written portion with optional oral portion) will be focused
on topics broadly related to automotive systems and mobility.

- In addition to the core sequence(s), students fill out the coursework portion of their degree
requirements with expertise area courses, some of which should be drawn from the core
focus area courses. A partial list of suggested expertise area courses is attached to this
document in Appendix A (due to the number of available math courses, these are not listed).

- All students are required to regularly attend seminars on relevant topics in automotive
Systems and Mobility. Seminars will be regularly scheduled at CAR (weekly during the
academic year) and by the MAE department. Students may also seek other seminar
opportunities, as they arise.

The requirements on the number of core course/sequences and expertise areas serve to increase
the breadth of skills that graduate engineers can apply to complex automotive problems. At the
same time, the student will better understand the perspectives, capabilities and approaches of
other engineering disciplines as well as their relevance to automotive systems.

The GS-ASM requirements are flexible enough to provide adequate depth within engineering
disciplines of primary interest to the student. It is expected that participating students will choose
elective courses so that the programs of study have an appropriate focus on an automotive-
related discipline in addition to the breadth of scope resulting from the core area courses and
expertise area requirements.

Table 1 summarizes the requirements of the GS-ASM Program. Changes to the graduate
programs in the MAE Department (such as activation/deactivation of courses) will be reflected
into the Graduate Specialization as well.

**Core Course Sequence Requirement**

A student completes a core sequence by selecting two semester courses from one of the core
focus areas listed below. Under special circumstances (included, but not limited to, the occurrence
that a class is not offered, cancelled, or if a new course is being offered), and providing that the
intent of the core sequence is preserved, students may be allowed to substitute for one or more
of the core courses in a sequence. Should any of these circumstances occur, the Program Administrator, along with the student advisor and the Graduate Studies Committee, will review and approve substitutions in the program of study.

**TABLE 1 – GS-ASM PROGRAM REQUIREMENTS**

<table>
<thead>
<tr>
<th>Program Option</th>
<th>Courses</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master with Thesis (or PhD with Dissertation)</td>
<td>One Core Course Sequence</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Expertise area courses^2</td>
<td>12-18</td>
</tr>
<tr>
<td></td>
<td>MS Thesis or PhD Dissertation</td>
<td>6-10</td>
</tr>
<tr>
<td></td>
<td>Seminars on automotive topics (3 per semester)</td>
<td>n/a</td>
</tr>
<tr>
<td>Master with Non-Thesis Option</td>
<td>Two Core Course Sequences</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Expertise area courses</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Seminars on automotive topics (3 per semester)</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Core sequences consist of basic courses of critical importance to automotive systems in areas matching the research areas of OSU CAR:

**Core Focus Area 1: Advanced Propulsion Systems, APS**
- ME 7383 Electrochemical Energy Conversion and Storage Systems for Automotive Applications
- ME 7384 Energy Modeling, Simulation, Optimization and Control of Advanced Vehicles

**Core Focus Area 2: Powertrain Modeling and Control, PMC**
- ME 5339 Simulation Techniques for Dynamic Systems Analysis and Design
- ME 7236 Powertrain Dynamics
- ME 8312 Diesel Powertrain Systems Control
- ME 8372 Fault Diagnosis in Dynamic Systems
- ECE 5554 Powertrain Control

**Core Focus Area 3: Noise, Vibration and Harshness, NVH**
- ME 5240 Mechanical Vibrations
- ME 5194 Engineering Acoustics
- ME 7260/1 Automotive Noise and Vibration Control I
- ME 7262/3 Automotive Noise and Vibration Control II
- ME 8260 Advanced Engineering Acoustics

**Core Focus Area 4: Internal Combustion Engines, ICE**
- ME 5427 Turbomachinery
- ME 5530 Internal Combustion Engines
- ME 5531 Automotive Powertrain Laboratory

^2 This must include at least one more core course (from the list of core focus area courses), outside the core focus area from which a sequence is chosen (applies to MS and Ph.D. programs alike).
ME 7440 Internal Combustion Engine Modeling  
ME 7520 Wave Dynamics in Fluids

**Core Focus Area 5: Electromechanical and Power Conversion Systems, EPC**  
ME 7384 Energy Modeling, Simulation, Optimization and Control of Advanced Vehicles  
ECE 5025 Power Electronics Devices, Circuits and Applications  
ECE 5041 Electric Machine Fundamentals

**Core Focus Area 6: Vehicle Systems – Connected and Automated Vehicles (CAV)**  
ME 8194 Robust Control for Mechatronics Systems  
ME 8372 Fault Diagnosis in Dynamic Systems  
ECE 5400 Instrumentation, Signals, and Control in Transportation Applications  
ECE 5553 Autonomy in Vehicles  
ECE 7855 Large Scale and Cyber-Physical Systems

**Core Focus Area 7: Vehicle Systems – Vehicle Dynamics and Control**  
ME 5234 Vehicle Dynamics  
ME 8322 Vehicle System Dynamics and Control  
ME 8372 Fault Diagnosis in Dynamic Systems

**Expertise Area Requirements**

In addition to the core sequence(s) noted in Table 1, each student is required to take at least 12 semester credit hours (depending on the MS or PhD degree course requirements) of expertise area course work, at least three hours of which must be drawn from the list of core focus areas. The selection of courses emphasizes the interdisciplinary nature of automotive systems and mobility, which spans across multiple department and graduate programs. A partial list of expertise area courses is given in the Appendix; because courses not listed herein may still qualify as expertise area courses (such as most mathematics courses available for graduate credit), the student must work out a plan with the graduate advisor, and submit it to the GS-ASM program administrator at CAR for approval.

**Seminar on Automotive Topics**

All graduate students who plan to participate in the GS-ASM program are expected to regularly attend seminars focusing on topics directly related to automotive systems. The weekly CAR seminars, as well as seminars within or outside the MAE Department, will feature a variety of speakers and topics, including invited speakers from industry. In general, they will cover selected areas of automotive systems, focusing on current work in automotive-related research, and/or discussed from the point of view of practicing automotive engineers and managers.

Students are required to attend at least three seminars on automotive-related topics, per semester. The student will be responsible for filling in an online questionnaire upon completion of each seminar, which will be used by the Program Administrator at CAR to monitor the progress and completion of the requirements.

**Other Requirements**

It is expected that the final research product (MS thesis or Ph.D. dissertation), if part of the program of study, must be relevant to automotive systems. Before the first Friday of the semester of graduation, the student will contact the GS-ASM program administrator at CAR and submit a title and abstract of the thesis or dissertation.
PROGRAM ADMINISTRATION

The implementation and management of the Graduate Specialization in Automotive Systems and Mobility is executed by CAR. The Center Director will have general oversight of the program. The Associate Director for Graduate and Continuing Education will be the Program Administrator, with responsibility to verify that applicants meet the program requirements, manage communications and serve as the liaison to the participating graduate program. Finally, the Marketing and Outreach Coordinator at CAR will provide support to the Program Administrator, by maintaining the GS-ASM program website, collecting the applications, and promoting and advertising the program through OSU-approved media channels.

Since the GS-ASM is integrated into the degree programs offered by the MAE Department, the Graduate Studies Committee will exercise oversight of the GS-ASM to ensure that students satisfy the requirements for the degree program and the specialization. The GS-ASM Program Administrator will work in concert with the student advisor and the Graduate Studies Committee to verify and approve the course plan chosen by the student to ensure it fits to the intended goals. Since the GS-ASM builds upon existing courses and programs, the faculty and facilities currently available are adequate and sufficient to support the program. It is envisioned that no additional facilities and staff are necessary.

During the implementation of the GS-ASM, particular attention will be devoted to broadening participation of underrepresented groups, which will be accomplished by promoting the specialization through information sessions held in collaboration with the Women in Engineering Program. The MAE graduate program will also contribute to advertise the GS-ASM program to underrepresented groups during Graduate Student orientations and “open-house” events.

Center for Automotive Research Representatives

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APPENDIX:
SUGGESTED EXPERTISE AREA COURSES

Power Electronics and Electric Machines
ECE 5025  Power Electronics: Devices, Circuits, and Applications
ECE 5041  Electric Machines
ECE 5042  Power Systems
ECE 5541  Sustainable Energy and Power Systems
ECE 7842  Advanced Topics in Electric Machines

Dynamic Systems, Measurement and Control
ME 5234  Vehicle Dynamics
ME 5339  Simulation Techniques for Dynamic System Analysis and Design
ME 5372  Design and Control of Mechatronic Systems
ME 5665  Reliability Engineering I
ME 5666  Reliability Engineering II
ME 7370  Measurement Systems and Experimental Techniques
ME 7290  Digital Control Engineering
ME 7380  Lumped Parameter Modeling and System Analysis
ME 8194  Robust Control for Mechatronics Systems
ME 8312  Diesel Powertrain Systems Control
ME 8322  Vehicle System Dynamics and Control
ME 8372  Fault Diagnosis in Dynamic Systems
ECE 5551  State-Space Control Systems
ECE 5553  Autonomy in Vehicles
ECE 5754  Nonlinear Systems Theory
ECE 5557  Control System Implementation Laboratory
ECE 7854  Nonlinear and Adaptive Control
ECE 7858  Intelligent Control
ECE 5465  Advanced Microcomputers
ECE 5400  Instrumentation, Signals, and Control in Transportation Applications
ECE 5554  Powertrain Control
ECE 7855  Large Scale and Cyber Physical Systems

Signal Processing
ECE 5200  Introduction to Digital Signal Processing
ECE 6200  Signal Processing
ECE 6202  Stochastic Signal Processing
ME 5320H  Digital Signal Processing with Mechanical Engineering Applications
ME 8320  Digital Signal and Random Data Analysis for Mechanical Systems

Mechatronics
ME 7752  Mechanics and Control of Robots
ME 8194  Robust Control for Mechatronics Systems
ME 8372  Fault Diagnosis in Dynamic Systems
ECE 5463  Introduction to Real Time Robotics Systems
ECE 6101  Computer Communication Networks
### Noise, Vibration and Dynamics
- ME 5139  Applied Finite Element Method
- ME 5168  Introduction to the Finite Element Method
- ME 5240  Vibration and Acoustic Design
- ME 7250  Vibration of Discrete Systems
- ME 8230  Nonlinear Dynamics
- ME 8250  Vibration of Continuous Systems
- ME 8260  Advanced Engineering Acoustics

### Computer Aided Design, Engineering & Manufacturing (CAD/CAE/CAM)
- ME 5680  Computer Aided Design and Manufacturing
- ME 5682.01  Fundamentals of Product Design Engineering
- ME 7761  Optimum Design of Machines and Structures
- ME 7751  Advanced Kinematics and Mechanisms

### Thermodynamics, Combustion Processes, and Emissions
- ME 5427  Turbomachinery
- ME 5502  Engineering Thermodynamics
- ME 5530  Internal Combustion Engines
- ME 5531  Automotive Powertrain Laboratory
- ME 6526  Combustion
- ME 7440  Internal Combustion Engine Modeling
- ME 7526  Advanced Combustion
- ME 8503  Statistical Thermodynamics
- ME 8514  Optical Techniques for Flow Measurements

### Fluid Mechanics and Heat Transfer
- ME 6501  Gas Dynamics
- ME 6505  Intermediate Fluid Dynamics
- ME 6507  Intermediate Numerical Methods
- ME 6510  Intermediate Heat and Mass Transfer
- ME 7511  Computational Fluid Dynamics
- ME 7513  Turbulence
- ME 7520  Wave Dynamics in Fluids
- ME 8506  Advanced Fluid Dynamics

### Structural & Mechanical Design
- ME 5144  Engineering Fracture Mechanics
- ME 5139  Applied Finite Element Method
- ME 7163  Advanced Strength of Materials and Elasticity Theory
- ME 7701  Experimental Methods in Movement Biomechanics
- ME 7765  Principles and Applications of Tribology
- ME 8043  Advanced Elasticity
Response to questions and suggestions from the Graduate School (Email 4/23/2018)

Dear Jennifer,
Thank you very much for the thorough review of our proposal. We have addressed your questions in this cover letter, which indicates the changes made to the proposal. Please do not hesitate to contact me if there is any question or concern.

The combined Graduate School/CAA curriculum subcommittee, which I chair as Faculty Fellow, has reviewed your proposal for at Graduate Specialization in Automotive Systems and Mobility. We found it to be extremely thorough and legible, and can easily see its value to the university. We have few requests for revisions. When you submit a revised proposal, please do include a cover sheet with each of these requests, along with your responses to them and/or point us towards where in the document the revisions can be found.

1. Proposal page 2: Restarting the program is indicated as based on demand from the auto industry. Are there any specific needs assessment data that have been gathered that could be highlighted in the proposal and/or in the form of a support letter from the Center for Automotive Research (CAR)?

A letter of support was provided by CAR to indicate the support for the proposed program. Letter is attached for your consideration.

2. Proposal pages 4 into 5: The GS-ASM specialization is embedded within the overall degree programs at the masters and doctoral levels. Is the requirement of two core sequences for the non-thesis option for M.S. students an existing approved option for the Masters program, or is this a new option specifically for students in the GS-ASM specialization? If it is an existing approved option for the Masters program, is the difference for GS-ASM specialization students that these students will complete a thesis relevant to auto systems in particular? The email correspondence about the intent of the non-thesis option also being an ‘integrative’ or summative evaluation of the student’s overall program does not necessarily seem to be satisfied via taking additional core courses. Please clarify this aspect for the non-thesis option and specifically in relation to the new GS-ASM specialization that is being proposed.

For the MS students pursuing the non-thesis option, the GS-ASM does not require taking additional courses besides the minimum credit requirements, as specified in the MAE graduate program requirements handbook: https://mae.osu.edu/graduate/forms-and-handbooks.
Future changes to the graduate programs (for example, changes in the number of required credits) will be reflected into the Graduate Specialization.

The proposal has been modified as follows:
- Changed Table I to reflect specific credit requirements for MS with non-Thesis option;
- Modified proposal on page 5: “Non-thesis option students (MS only) are required to take two core sequences. The second core course sequence is to provide students with
additional coursework in the field in place of the applied research experience one would get by pursuing the thesis option. In addition, it is expected that the examination (written portion with optional oral portion) will be focused on topics broadly related to automotive systems and mobility.”

- Added sentence on page 5: “Changes to the graduate programs in the MAE Department (such as activation/deactivation of courses) will be reflected into the Graduate Specialization as well.”

3. Proposal page 5: Please clarify the process for approval of course substitutions to be approved by the program administrator. Usually this should include the student’s academic advisor and/or Graduate Studies Committee approval/s.

As indicated in the MAE Graduate Handbook, students may submit a petition through an online form to the MAE department. The petition will require joint approval by the student advisor and the Graduate Studies Committee.

To reflect the specific case of students who requested the Graduate Specialization, the online form will be modified by including an additional box, where the student can specify whether he/she is part of a Graduate Specialization. If this is the case, the Program Administrator of the corresponding Specialization will be notified, and a request for approval will be sent.

The sentence on page 5 of the proposal has been modified as: “Should any of these circumstances occur, the Program Administrator, along with the student advisor and the Graduate Studies Committee, will review and approve substitutions in the program of study.”

4. Proposal page 8 and elsewhere where applicable: In addition to administrative and technical structure and process, a Graduate Studies Committee (GSC) oversees the program. Please add some description of the GSC for the GS-ASM in relation to GSC functions in the Graduate School Handbook, particularly in regard to section 14.1 on General Responsibilities. Please also describe the roles of the graduate faculty advisors of students in relation to the GS-ASM specifically.

The following sentence was inserted in page 8 of the proposal: “Since the GS-ASM is integrated into the degree programs offered by the MAE Department, the Graduate Studies Committee will exercise oversight of the GS-ASM to ensure that students satisfy the requirements for the degree program and the specialization. The GS-ASM Program Administrator will work in concert with the student advisor and the Graduate Studies Committee to verify and approve the course plan chosen by the student to ensure it fits to the intended goals.”

5. An administrative support letter for the proposed specialization did not appear to be included in the materials. Please provide one from your relevant Chair or Dean.

A support letter from the MAE Graduate Studies Committee chair (Dr. Jeffrey Bons) is attached.
Dear Jennifer,

Thank you so much for the thorough review of the proposal and the useful feedback. At the same time, I really apologize for responding to your email after 3 months... I’ve been on leave for an extended period of time, and I just returned.

I will work with CAR and the MAE Department to provide answers to your points and move forward with the proposal.

Many thanks again and sorry for my super-late reply!
Best regards,

Marcello

1. Proposal page 2: Restarting the program is indicated as based on demand from the auto industry. Are there any specific needs assessment data that have been gathered that could be highlighted in the proposal and/or in the form of a support letter from the Center for Automotive Research (CAR)?
2. Proposal pages 4 into 5: The GS-ASM specialization is embedded within the overall degree programs at the masters and doctoral levels. Is the requirement of two core sequences for the non-thesis option for M.S. students an existing approved option for the Masters program, or is this a new option specifically for students in the GS-ASM specialization? If it is an existing approved option for the Masters program, is the
difference for GS-ASM specialization students that these students will complete a thesis relevant to auto systems in particular? The email correspondence about the intent of the non-thesis option also being an ‘integrative’ or summative evaluation of the student’s overall program does not necessarily seem to be satisfied via taking additional core courses. Please clarify this aspect for the non-thesis option and specifically in relation to the new GS-ASM specialization that is being proposed.

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5. An administrative support letter for the proposed specialization did not appear to be included in the materials. Please provide one from your relevant Chair or Dean.

Upon receipt of these revisions, I will immediately forward on to the Graduate Council for their review (likely by an electronic vote, given where we are in the semester), and then on to CAA for theirs.

Thank you so much, and please do let me know if you have any questions,

Jen

Jennifer Schlueter, PhD
Associate Chair, Department of Theatre
Associate Professor | Lab Series Coordinator | Editor, Theatre/Practice
Faculty Fellow, Curriculum, Graduate School
1103 Drake Center, 1849 Cannon Dr, Columbus, OH 43210
614-688-3778
July 18th, 2018

To Whom It May Concern,

This letter provides support for the proposed Graduate Specialization in Automotive Systems and Mobility, recently submitted by Prof. Marcello Canova. This cover letter confirms that the proposed specialization was reviewed by the MAE Graduate Studies Committee during the 2018/2019 academic year. It was subsequently approved by the GSC, of which I currently serve as committee chair. The proposed specialization will help prepare the next generation of leaders in the automotive and mobility industry, putting OSU at the cutting edge of the rapidly evolving field for decades to come. The MAE department is fully behind this initiative.

The MAE point contact for the proposal is Dr. Marcello Canova. Please direct any questions to Dr. Canova, with a copy to me.

Thank you for your consideration,

Jeffrey Bons
Professor and Associate Chair of Graduate Studies
Department of Mechanical and Aerospace Engineering
To Whom It May Concern

This letter provides support and justification for the proposal for a Graduate Specialization in Automotive Systems and Mobility, recently submitted by Prof. Marcello Canova.

In my role as Director of the Center for Automotive Research, I have the opportunity to meet with automotive and mobility industry partners twice annually, as part of our External Advisory Board semi-annual meetings. The Board sees the participation of over 30 automotive and mobility companies, and its Executive Committee is composed of executives from Ford, General Motors, Fiat-Chrysler, Honda, Delphi, TRC Inc. The role of the Executive Committee is to advise the Center on matters related to strategic direction and vision. It has been clear that one of the key challenges facing the automotive and mobility industry is (and will increasingly be) the education of the next generation of leaders who will become responsible for the transition from today’s automotive industry to a mobility industry capable of satisfying societal needs in a broader sense. Every one of our industrial advisors recognizes that the workforce turnover that is the result of the tail end of the baby boom is a challenge, but also an opportunity to reconstitute a more modern workforce. To this end, we have been strongly encouraged to re-think our educational offerings at the graduate level, to provide graduate students from multiple disciplines offerings that will prepare them for the evolution of this industry, and that also will serve the purpose of attracting non-traditional candidates to this field.

The proposal that Prof. Canova has developed has precisely the intent of preparing a new generation of thought leaders in the automotive and mobility industry, and places Ohio State in an advantageous position in recruiting talented graduate students to multiple engineering graduate programs. I commend Prof. Canova for his efforts and look forward to participating in the implementation of this Graduate Specialization in my role as faculty in the MAE and ECE departments.

Sincerely,

Giorgio Rizzoni
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Director and Senior Fellow, Center for Automotive Research
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