Consortium Membership Highlights

**Student Training**
Members Access Students with Skills in Electromagnetics
- VT MEEP student(s) are trained by the consortium
  - Electromagnetics Boot Camp
  - RF/Microwave Boot Camp (option)
- VT MEEP student(s) can be certified
  - Consortium will develop additional course work
  - Keysight Industry Ready (option)
- VT Academic Courses specifically designed to support the program

**Undergraduate Student Interaction**
Members Interact Directly with Undergraduates
- Deliver technical seminars to student groups
- Deliver guest lectures to student groups
- Mentoring with individual students
- Guide and advise multi-year, multi-disciplinary student research team(s)

**Consortium Graduate Student(s)**
Members Assist Mentoring Consortium Graduate Students
- Mentor graduate student(s)
  - Participation in reviews
  - Participation in presentations
  - Receive preview and final copies of the thesis or dissertation

**Workforce Upskilling**
Member Workforce Training Opportunities
- Introductory boot camp training for new employees, managers, business development: electromagnetics, RF/Microwave with more to be added
- Short course participation with discounts
- Technology reviews and assessments

**Consortium Advantages**
Member Networking and Recruiting Opportunities
- Members are given multiple recruiting opportunities
- Consortium member meetings organized once a year
- Advisory board meetings organized once a year
- Networking: Large membership for government and industry collaboration

**Short Courses**
Several short courses are under development. These courses will be offered at the Blacksburg campus but may be periodically offered at the Arlington, VA location

- Electromagnetic Material Modeling and Characterization
- Low-cost and Improvised Range Techniques
- Arrays, FSS and Radomes
- Composite Mechanics
- Additive Manufacturing for RF Devices

RECRUITING

Consortium Student Recruiting
- Secondary schools:
  - Pilot efforts performed in Southwest VA
  - Successful efforts will be transitioned to additional regions
- VT Undergraduate Engineering: guest lectures, seminars, focus groups, open house
- VT Physics: Guest Lectures, seminars

Consortium Outreach Support
- Outreach to secondary schools in collaboration with the Virginia Tech CEED program (https://eng.vt.edu/ceed.html)
- Outreach to VT freshmen through numerous available programs in collaboration with the Virginia Tech CEED
- Grants that help generate STEM programs serving secondary schools: Serving the local community and transitioning to the national community

All MEEP Students Are Exposed to Electromagnetics Regardless of Discipline
- Electromagnetics Boot Camp
  - All VT MEEP students will be required to attend this course
  - Offered twice a year: beginning of Fall and Spring Semesters
- RF and Microwave Boot Camp
  - Select students are required to attend, others are eligible
  - Offered twice a year: beginning of Fall and Spring Semesters
- Keysight Industry Ready Certification, select students

The Consortium Creates New Academic Courses and Seminars
- Technical electives supporting the consortium
- Freshman seminar series: for-credit or an informal course depending on approvals
- Guest lectures in appropriate courses: freshman and sophomore general, electrical engineering and physics
- Development of a demonstration series supporting recruiting events
- Members may participate in instruction delivery

Consortium Supported Graduate Students
- Spreads the cost of graduate students that help support the consortium
- Consortium will begin recruiting one or more graduate students during the 2021/2022 school year where the number will be determined by membership participation
- Consortium graduate student(s) will be supported by a Graduate Research Assistant (GRA), positions beginning Fall 2022

Graduate Student Purpose and Responsibilities
- Graduate student(s) support the undergraduate teams
- Graduate student(s) shall pursue a consortium-related research project as their research work
- Members may attend reviews, help mentor students
- Members have access to reports and early access to the thesis

UNDERGRADUATE STUDENTS

Boot Camps
- Electromagnetics Boot Camp
  - All VT MEEP students will be required to attend this course
  - Offered twice a year: beginning of Fall and Spring Semesters
- RF and Microwave Boot Camp
  - Select students are required to attend, others are eligible
  - Offered twice a year: beginning of Fall and Spring Semesters
- Keysight Industry Ready Certification, select students

Graduate Student Purpose and Responsibilities
- Graduate student(s) support the undergraduate teams
- Graduate student(s) shall pursue a consortium-related research project as their research work
- Members may attend reviews, help mentor students
- Members have access to reports and early access to the thesis

Consortium Outreach Support
- Outreach to secondary schools in collaboration with the Virginia Tech CEED program (https://eng.vt.edu/ceed.html)
- Outreach to VT freshmen through numerous available programs in collaboration with the Virginia Tech CEED
- Grants that help generate STEM programs serving secondary schools: Serving the local community and transitioning to the national community

The Consortium Creates New Academic Courses and Seminars
- Technical electives supporting the consortium
- Freshman seminar series: for-credit or an informal course depending on approvals
- Guest lectures in appropriate courses: freshman and sophomore general, electrical engineering and physics
- Development of a demonstration series supporting recruiting events
- Members may participate in instruction delivery

Consortium Supported Graduate Students
- Spreads the cost of graduate students that help support the consortium
- Consortium will begin recruiting one or more graduate students during the 2021/2022 school year where the number will be determined by membership participation
- Consortium graduate student(s) will be supported by a Graduate Research Assistant (GRA), positions beginning Fall 2022

Graduate Student Purpose and Responsibilities
- Graduate student(s) support the undergraduate teams
- Graduate student(s) shall pursue a consortium-related research project as their research work
- Members may attend reviews, help mentor students
- Members have access to reports and early access to the thesis

CONSORTIUM

OUTREACH

Secondary schools:
- Pilot efforts performed in Southwest VA
- Successful efforts will be transitioned to additional regions

VT Undergraduate Engineering: guest lectures, seminars, focus groups, open house

VT Physics: Guest Lectures, seminars

All MEEP Students Are Exposed to Electromagnetics Regardless of Discipline
- Electromagnetics Boot Camp
  - All VT MEEP students will be required to attend this course
  - Offered twice a year: beginning of Fall and Spring Semesters
- RF and Microwave Boot Camp
  - Select students are required to attend, others are eligible
  - Offered twice a year: beginning of Fall and Spring Semesters
- Keysight Industry Ready Certification, select students

The Consortium Creates New Academic Courses and Seminars
- Technical electives supporting the consortium
- Freshman seminar series: for-credit or an informal course depending on approvals
- Guest lectures in appropriate courses: freshman and sophomore general, electrical engineering and physics
- Development of a demonstration series supporting recruiting events
- Members may participate in instruction delivery

Consortium Supported Graduate Students
- Spreads the cost of graduate students that help support the consortium
- Consortium will begin recruiting one or more graduate students during the 2021/2022 school year where the number will be determined by membership participation
- Consortium graduate student(s) will be supported by a Graduate Research Assistant (GRA), positions beginning Fall 2022

Graduate Student Purpose and Responsibilities
- Graduate student(s) support the undergraduate teams
- Graduate student(s) shall pursue a consortium-related research project as their research work
- Members may attend reviews, help mentor students
- Members have access to reports and early access to the thesis

https://hume.vt.edu/education-outreach/workforce-development-programs/mEEP.html
### Membership Tiers

<table>
<thead>
<tr>
<th>Tier</th>
<th>1: Tier 1</th>
<th>2: Tier 2</th>
<th>3: Tier 3</th>
<th>4: Government (Basic)</th>
<th>5: Government (Full)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>$25K*</td>
<td>$50K*</td>
<td>$75K*</td>
<td>No Mandatory Fees</td>
<td>$75K*</td>
</tr>
</tbody>
</table>

*Initial Period is extended to 2 years to allow for program ramp-up Annual renewal after initial period expires 7/2023

### Student Teams

- **1: Tier 1**
  - Full Access* to one team**
- **2: Tier 2**
  - Full Access* to two teams**
- **3: Tier 3**
  - Full Access* to three teams**
- **4: Government (Basic)**
  - Access to all student team meetings
  - Access all teams’ technical reports
  - Access all teams design products and design reviews
- **5: Government (Full)**
  - Full Access: suggest topic, mentor design, test and manufacturing, attend meetings/design reviews, full access to design products and reports

**Teams will often be shared depending on participation by students and members**

### Boot Camps

- **1: Tier 1**
  - Access to synchronous virtual boot camps for current employees
- **2: Tier 2**
  - Access to in-person boot camps
- **3: Tier 3**
- **4: Government (Basic)**
- **5: Government (Full)**

### Independent Student Researchers

- **1: Tier 1**
  - Topic selection, guidance and access for technology literature reviews
  - Topic selection, guidance and access for technology assessments
  - Access to prior year’s library of research products (except proprietary work)
  - Access to entire library of research products (except proprietary work)
  - Opportunities for individual student mentoring proprietary (dependent on student availability)
- **2: Tier 2**
- **3: Tier 3**
- **4: Government (Basic)**
- **5: Government (Full)**

### Other

- **1: Tier 1**
  - First access to nominate student(s) for available clearance billets
  - Advisory Board representation
  - Seat on the Advisory Board
  - Short Course Discount ($250)
  - Opportunities to sponsor/direct research
- **2: Tier 2**
- **3: Tier 3**
- **4: Government (Basic)**
- **5: Government (Full)**

*Full Access: suggest topic, mentor design, test and manufacturing, attend meetings/design reviews, full access to design products and reports

**Teams will often be shared depending on participation by students and members**

---

Seeking consortium lifecycle endowments to support strategic items, examples listed below. Based on investment level, partners will receive memberships to the consortium in perpetuity and other benefits.

1. Construction of a compact antenna range
2. Endowed graduate research fellowship
3. Endowed coverage for a MEEP consortium project coordinator

---

https://hume.vt.edu/education-outreach/workforce-development-programs/mEEP.html