



**7<sup>th</sup> International (online) Summer School on  
Advanced Material Systems (AMS):  
Manufacturing – Characterization – Modeling  
July 12-16, 2021**

**Tentative Program**

**Day 1 – Monday, July 12, 2021 (Central Daylight Time - CDT)**

|                    |                                                                                                                  |                                                                                                                                                                      |
|--------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>08:00-08:15</b> | Welcome Session                                                                                                  | - Dr. S. Stylianidis, Vice Rector for Research AUTH<br>- Dr. K. Katsifarakis, Dean of Engineering AUTH<br>- Dr. D. Lagoudas, Senior Associate Dean for Research TAMU |
| <b>08:15-08:30</b> | Introduction / Expectations (Overview of Topics, Material Systems, Manufacturing, and Experiments to be covered) | Dr. N. Michailidis, Director of the TEES-AUTH Partnership                                                                                                            |

| <i>Session I: Advanced Materials &amp; Manufacturing</i> |                                                                                            | <i>Instructor</i>  |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------|
| <b>08:30-09:10</b>                                       | Shape Memory Materials (SMAs)                                                              | Dr. D. Lagoudas    |
| <b>09:10-09:50</b>                                       | Additive Manufacturing of Phase Transforming Materials                                     | Dr. I. Karaman     |
| <b>09:50-10:00</b>                                       | Break                                                                                      |                    |
| <b>10:00-10:40</b>                                       | Additive Manufacturing of Shape Memory Polymers (SMPs), 3D scaffolds and porous structures | Dr. N. Michailidis |
| <b>10:40-11:20</b>                                       | Processing and Characterization of Porous Materials                                        | Dr. F. Stergioudi  |
| <b>11:20-11:30</b>                                       | Discussion with students                                                                   | All instructors    |

**Day 02 – Tuesday, July 13, 2021**

| <i>Session II: Micromechanics Workshop, Virtual hands-on &amp; student projects</i> |                                                                | <i>Instructor</i>                                           |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|
| <b>08:00-08:40</b>                                                                  | Micromechanics Workshop Part I                                 | Dr. D. Lagoudas                                             |
| <b>08:40-09:20</b>                                                                  | Micromechanics Workshop Part II                                | Dr. G. Chatzigeorgiou                                       |
| <b>09:20-9:30</b>                                                                   | Break                                                          |                                                             |
| <b>09:30-10:10</b>                                                                  | Micromechanics of Multifunctional Composites                   | Dr. G. Seidel                                               |
| <b>10:10-11:30</b>                                                                  | Thermal and thermomechanical testing of shape memory materials | Dr. K. Katakalos<br>Dr. F. Stergioudi<br>Dr. N. Michailidis |

**Day 03 – Wednesday, July 14, 2021**

| <i>Session III: Simulation of Smart Materials &amp; Structures</i> |                                   | <i>Instructor</i>                                              |
|--------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------|
| <b>08:00-08:40</b>                                                 | Micromechanics of Ductile Failure | Dr. J. Wilkerson                                               |
| <b>08:40-09:20</b>                                                 | Macroscale Fracture in SMAs       | Dr. T. Baxevanis                                               |
| <b>09:20-09:30</b>                                                 | Break                             |                                                                |
| <b>09:30-11:00</b>                                                 | Student Projects Assignment       | Dr. G. Chatzigeorgiou<br>Dr. F. Stergioudi<br>Dr. A. Karakalas |



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**Day 04 – Thursday, July 15, 2021**

| <i>Session IV: SMA Workshop and Student projects</i> |                                             | <i>Instructor</i>                                              |
|------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------|
| <b>08:00-09:30</b>                                   | SMA Workshop and Industrial Applications    | Dr. A. Karakalas                                               |
| <b>09:30-09:40</b>                                   | Break                                       |                                                                |
| <b>09:40-11:00</b>                                   | Review of progress on projects              | Dr. G. Chatzigeorgiou<br>Dr. F. Stergioudi<br>Dr. A. Karakalas |
| <b>11:00-...</b>                                     | Students continue working on their Projects |                                                                |

**Day 05 – Friday, July 16, 2021**

| <i>Session V: Industrial Applications of Advanced Material Systems</i> |                                                                                                | <i>Instructor</i> |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------|
| <b>08:00-09:00</b>                                                     | BETA CAE Systems   Capturing Multi-scale response of Composites with Homogenization techniques | Mr. C. Tegos      |
| <b>09:00-09:50</b>                                                     | Presentation of Student Projects – Part 1                                                      | All instructors   |
| <b>09:50-10:00</b>                                                     | Break                                                                                          |                   |
| <b>10:00-11:00</b>                                                     | Presentation of Student Projects – Part 2                                                      | All instructors   |
| <b>11:00-11:30</b>                                                     | Networking session                                                                             | All instructors   |
| <b>11:30-12:00</b>                                                     | Certificate Awarding Ceremony and Conclusion of Summer School                                  | All instructors   |