# Budget Detail Request - Fiscal Year 2016-17

**Your request will not be officially submitted unless all questions and applicable sub parts are answered.**

1. Title of Project: Advanced Manufacturing and Materials Innovation (AMMI) at the University of North FLorida
2. Date of Submission: 12/15/2015
3. House Member Sponsor(s): Lake Ray

**4. DETAILS OF AMOUNT REQUESTED:**

a. Has funding been provided in a previous state budget for this activity? No

***If answer to 4a is ?NO? skip 4b and 4c and proceed to 4d***

b. What is the most recent fiscal year the project was funded?

c. Were the funds provided in the most recent fiscal year subsequently vetoed? No

d. Complete the following Project Request Worksheet to develop your request (Note that Column E will be the total of Recurring funds requested and Column F will be the total Nonrecurring funds requested, the sum of which is the Total of the Funds you are requesting in Column G):

| **FY:** | **Input Prior Year Appropriation for this project for FY 2015-16 (If appropriated in FY 2015-16 enter the appropriated amount, even if vetoed.)** | | | **Develop New Funds Request for FY 2016-17 (If no new Recurring or Nonrecurring funding is requested, enter zeros.)** | | | |
|---|---|---|---|---|---|---|---|
| Column: | A | B | C | D | E | F | G |
| Funds Description: | Prior Year Recurring Funds | Prior Year Nonrecurring Funds | Total Funds Appropriated (Recurring plus Nonrecurring: Column A + Column B) | Recurring Base Budget (Will equal non-vetoed amounts provided in Column A ) | **INCREASED or NEW Recurring Requested** | **TOTAL Nonrecurring Requested** (Nonrecurring is one time funding & must be re-requested every year) | **Total Funds Requested Over Base Funding** (Recurring plus Nonrecurring: Column E + Column F) |
| Input Amounts: | | | | | 3,068,000 | 5,505,000 | 8,573,000 |

e. New Nonrecurring Funding Requested for FY 16-17 will be used for:

f. New Recurring Funding Requested for FY 16-17 will be used for:

5. Requester:

a. Name: President John A. Delaney

b. Organization: University of North Florida

c. Email: jdelaney@unf.edu
d. Phone #: (904)620-2500

6. Organization or Name of Entity Receiving Funds:
a. Name: University of North Florida
b. County (County where funds are to be expended) Duval
c. Service Area (Counties being served by the service(s) provided with funding) Baker, Clay, Duval, Flagler, Nassau, Putnam, Saint Johns

7. Write a project description that will serve as a stand-alone summary of the project for legislative review. The description should summarize the entire project?s intended purpose, the purpose of the funds requested (if request is a sub-part of the entire project), and most importantly the detail on how the funds requested will be spent - for example how much will be spent on positions and associated salaries, specifics on capital costs, and detail of operational expenses. The summary must list what local, regional or statewide interests or areas are served. It should also document the need for the funds, the community support and expected results when applicable. Be sure to include the type and amount of services as well as the number of the specific target population that will be served (such as number of home health visits to X, # of elderly, # of school aged children to receive mentoring, # of violent crime victims to receive once a week counseling etc.)

Project Summary
Based on the economic strengths and targeted industry expansion priorities of Northeast Florida, University of North Florida seeks to expand education and research in the areas of Advanced Manufacturing and Materials Innovation (AMMI). This initiative is based on the economic drivers in the region, the support and involvement of local industry, and UNF?s mission to provide the highly-trained workforce required to grow our economy in these focused and highly inter-related areas. The selection of these particular areas is based in the economic realities of Northeast Florida. The AMMI initiative at UNF will provide the necessary funding and infrastructure to bolster relevant industrial research in the existing engineering programs at UNF, and create undergraduate and graduate programs in Manufacturing Engineering, one of only 20 such programs in the country, and the only one in the state of Florida to train the skilled manufacturing workforce of tomorrow.
The academic programs associated with these facilities will become a source of skilled workforce training to attract those businesses considering startup or relocation in Northeast Florida as well as serving as the basis for expansion of cutting-edge programs in automotive engineering, aeronautical engineering and advanced manufacturing engineering. The Jacksonville Regional Chamber of Commerce, JAXUSA Partnership and the First Coast Manufacturers Association have identified growth of these academic programs as one of the most promising recruiting tools to bring high tech businesses to the region, while providing tangible evidence of UNF?s commitment to STEM education and research.
Budget and Expenses: Total nonrecurring funding in the amount of $5,505,000 is requested for the purpose of purchasing large, multi-user manufacturing and analytical equipment (capital purchase $2,855,000), supporting faculty start up packages (mix of capital purchase and one-time expenses $1,650,000) for incoming engineering faculty, tuition waivers and stipends for a cohort of graduate students (one-time expense $500,000) to assist new faculty in establishing a robust research program around the advanced manufacturing subject area, and finally for funding the Florida High Tech Corridor account, required to bring UNF and the five county region into the program (one-time expense $500,000). Recurring funds for AMMI will total $3,068,00. Funds will be used for ten

engineering faculty positions, and staff salaries (salary expenses $2,078,000) and ongoing major equipment training, service contracts, costs, and consumables (ongoing equipment costs $990,000).

| | RECURRING | NON-RECURRING | TOTAL |
|---|---|---|---|
| Salaries and Benefits | $2,078,000 | $0 | $2,078,000 |
| Expenses | $130,000 | $500,000 | $630,000 |
| Specialized Equipment | $860,000 | $4,505,000 | $5,365,000 |
| Initial Student Support | $0 | $500,000 | $500,000 |
| | $0 | $0 | $0 |
| Total All Categories | $3,068,000 | $5,505,000 | $8,573,000 |

Partnership with TESCAN, USA: In partnership with one of the world leaders in advanced microscopy, TESCAN USA, Inc., UNF will establish a Materials Science and Engineering Research Facility (MSERF). The MSERF will support industry quality control and R&D efforts, as well as other funded scientific research at UNF and will serve as a high-tech R&D resource to existing regional manufacturers.

Partnership with Johnson and Johnson: In partnership with MD&D Global Services, a division of Johnson and Johnson, UNF has established a 3-D Printing Laboratory as part of MD&D?s 3-D Printing and Netshape Technology Center. This laboratory will develop novel materials and processes through various 3D printing technologies to facilitate personalized products that may minimize surgical recovery time, provide area-specific treatment, and improve medical device efficiencies. Additionally, the potential disruption in the current supply chain model may provide cost savings to patients in the medical device and consumer health care fields.

Partnership with Shimadzu: Currently the School of Engineering is in negotiations with Shimadzu, a leading Japanese manufacturer of testing and analytical equipment for manufacturing and quality control. Through Shimadzu?s University Grant program, UNF will equip student and research labs with state of the art equipment at a fraction of the retail price, and in great excess of a typical ?education discount.? Shimadzu has partnered with universities in other regions of the US, but has no partner in the southeast, and is looking to make a significant contribution to UNF, allowing the university to take greater advantage of the State?s Investment.

Return on the State?s Investment

Private Partnerships: The two partner companies that have agreed to invest in UNF exemplify the type of return UNF will provide on the state?s investment.

TESCAN USA Partnership: Under the Memorandum of Understanding currently being negotiated between TESCAN USA and the University of North Florida (contingent on the state investment), in the first 4 years TESCAN USA would provide:

1. Scholarships ($15,000/year for 4 years): $ 60,000.00
2. Warranties (parts & labor service contract): 480,000.00
3. Outreach events: 60,000.00
4. TESCAN USA fulltime personnel: 80,000.00
5. School Demonstrations and Outreach : 450,000.00
6. Technical personnel training: 90,000.00

$ 1,220,000.00

Johnson and Johnson Partnership: Under the Memorandum of Understanding currently being negotiated between MD&D Global Services, a division of Johnson and Johnson and UNF (contingent on the state investment), in the first 5 years J&J would:

1. Improve, Equip and maintain an advanced Laboratory for R&D in additive manufacturing $ 3,000,000
2. Support Graduate research projects 200,000
3. Support and Undergraduate design projects 100,000
4. Teach courses in advanced manufacturing (one per year) 30,000

$ 3,330,000

Quantifiable Secondary Benefits in first 5-years: It is anticipated that the TESCAN Center, the MD&D Laboratory and Associated Advanced Manufacturing and Materials Innovation Programs will produce approximately 125 additional Bachelor of Science graduates in Materials Engineering and 30 additional master degree graduates over the first five years. In addition, we anticipate partnering with Florida State College at Jacksonville (FSCJ) to develop a two-year or less SEM Technician training program (which TESCAN USA is contributing to ? see Item #5 above) and an Additive Manufacturing (3-D Printing) Technician (supported by MD&D) that would produce about 100 graduates between the two programs. The JAX Chamber has identified these types of engineers and technicians as in short-supply in the Northeast Florida Area, and estimates the shortage in these areas will increase over the next few years, and may result in an inability to attract companies if this workforce gap is not met. These positions form the basis of aeronautical, automotive and advanced manufacturing companies. According to information from the Florida Department of Economic Opportunity, Starting Materials Engineers (BS level) earn an average of $60,650, and experienced engineers (MS level) earn an average of $103,764. In addition, according to Simply Hired, Inc., Microscopy Technicians earn an average of $43,000/year. Accordingly, the total estimated additional benefit to the State from a wage perspective would be:

100 technicians averaging $43,000/year: $ 4.30 million/year
125 Entry Engineers averaging $60,650/year: $ 7.58 million/year
30 advanced engineers averaging 103,764/year: $ 3.11 million/year

$14.99 million/year

Return on Investment in 5 years: If the State chooses to invest in this proposal, once the facilities and programs are fully function, the average 5 year return on the investment will be $3.83 dollars for every $1 dollar provided by the state, as shown in the calculation below:

Total of Quantifiable benefits = $1,220,000 + $3,330,000 + 5*($14,990,000) = $ 79,500,000

State Investment Requested = $ 5,505,000 + 5* ($ 3,068,000) = $ 20,845,000

Percent ROI = $ 79900000 $ 20845000 x 100 = 383%

8. Provide the total cost of the project for FY 2016-17 from all sources of funding:
   Federal: 0
   State: 0 (Excluding the requested Total Amount in #4d, Column G)
   Local: 0
   Other: 965,000

9. Is this a multi-year project requiring funding from the state for more than one year?
   Yes