



# Academic Notes

JANUARY 17, 2006

AN 2005-2006

## \*\*SPECIAL NOTICES\*\*

### ACADEMIC NOTES PUBLICATION SCHEDULE FOR SPRING 2006

Below is the circulation schedule for the electronic copy of *Academic Notes* through May 1, 2006. **All submissions for inclusion in *Academic Notes* are due in the Office of Academic Affairs no later than 10:00 a.m. on the Wednesday prior to the distribution of *Academic Notes* on the following Monday, along with an E-Mail or a diskette with the same information in Microsoft Word format. Failure to submit a diskette containing this information will delay publication.** *Academic Notes* is available using Acrobat Reader at <http://web.indstate.edu/acadnotes/> –.

### ACADEMIC NOTES PUBLICATION SCHEDULE FOR SPRING 2006

<u>Deadline for Items</u>	<u>Issue Date</u>
January 18	January 23
January 25	January 30
February 1	February 6
February 8	February 13
February 15	February 20
February 22	February 27
March 1	March 6
March 8	March 13
March 15	March 20
March 22	March 27
March 29	April 3
April 5	April 10
April 12	April 17
April 19	April 24
April 26	May 1

# FACULTY GOVERNMENT

## GENERAL EDUCATION COUNCIL

The General Education Council will meet every Wednesday from 2:00-3:00 pm, in Holmstedt Hall, room 223. The meeting dates are listed below.

January 18, 2006  
January 25, 2005  
February 1, 2006  
February 8, 2006  
February 15, 2006  
February 22, 2006  
March 1, 2006  
March 8, 2006  
March 22, 2006  
March 29, 2006  
April 5, 2006  
April 29, 2006  
May 5, 2006  
May 12, 2006  
May 19, 2006  
May 26, 2006

## THESES, DISSERTATIONS, & RESEARCH PROJECTS

### **COLLEGE OF ARTS AND SCIENCES: Geography, Geology and Anthropology**

Diana Dickey will defend her thesis, entitled *On the Development of North Pacific Atmospheric Blocking and Colorado Lee Cyclogenesis*, at 1:00 p.m. on Tuesday, January 24, 2006, in the Science Building, room 112. The members of her committee are Dr. Greg Bierly, chairperson, Dr. Ryan Jensen, and Dr. John Oliver.

## PROGRAM ARTICULATION AGREEMENTS

Program articulation agreements between Indiana State University and our two-year partner institutions allow students to complete a specific associate degree program at another institution and receive credit toward a specific bachelor's degree program at Indiana State University. Each agreement details the transfer courses accepted for credit at ISU, the courses needed to complete the bachelor's degree, and any other requirements or guidelines that apply. The following agreements have recently been approved:

Ivy Tech Community College  
AS Nursing to BS Nursing for Registered Nurses

# CURRICULUM

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## UNDERGRADUATE PROPOSALS

### NEW COURSE

#### COLLEGE OF TECHNOLOGY: Industrial and Mechanical Technology

**IMT 304**     **Engineering Analysis**--3 hours. Introduction to the analysis of engineering problems including dynamics and thermodynamics using calculus based methods. The emphasis is given to the understanding of basic concepts and principles as well as the applications of related analysis in mechanical and manufacturing engineering. Prerequisite: Mathematics 301 or equivalent.

*Preferred Effective Term: Fall 2006*

**IMT 330**     **Survey of Motorsports**--3 hours. An exploration of racing on land, on water, and in the air. Current rules, regulations, and media attention are included. Emphasis is placed on popular modes of motor racing in Indiana. Prerequisite: Sophomore standing or consent of instructor.

*Preferred Effective Term: Summer I 2006*

## COURSE REVISIONS

### **COLLEGE OF TECHNOLOGY: Aerospace Technology**

**AST 205 Aviation Operations**--3 hours. Organization and operation of small airport aviation facilities. Included will be flight line operations, aircraft maintenance, sales, administration, state and federal regulations, and community relations. Prerequisites: 141 and 143; or consent of instructor.

*Change Title to:*

**AST 205 General Aviation Operations**--3 hours. Organization and operation of small airport aviation facilities. Included will be flight line operations, aircraft maintenance, sales, administration, state and federal regulations, and community relations. Prerequisites: 141 and 143; or consent of instructor.

*Preferred Effective Term: Fall 2006*

### **COLLEGE OF TECHNOLOGY: Industrial and Mechanical Technology**

**IMT 130 Introduction to Industrial and Mechanical Technology**--2 hours. Orientation to the student's major field—mechanical, automotive, or packaging technology.

*Change title and description to:*

**IMT 130 Introduction to Engineering and Technology**--2 hours. This course introduces students into the realm of engineering and technology. It explains what the profession is, what important roles engineering technology plays, how it is different from other major professions in the society, and the career opportunities for engineering technology students. The course also introduces the basic principles of engineering in terms of problem solving approach, methodology, knowledge, and skill involved.

*Preferred Effective Term: Fall 2006*

## COURSE REACTIVATIONS

### **COLLEGE OF ARTS AND SCIENCES: Family and Consumer Sciences**

**FCS 400 Study Abroad**--3-6 hours. The resources of various geographic areas: selected aspects of Family and Consumer Sciences. Evidence of individual study is required. Prerequisites: Consent of instructor.

*Change credit hours to:*

**FCS 400 Study Abroad**--3-6 hours. The resources of various geographic areas: selected aspects of Family and Consumer Sciences. Evidence of individual study is required. Prerequisites: Consent of instructor.

*Preferred Effective Term: Summer I 2006*

## **COLLEGE OF TECHNOLOGY: Aerospace Technology**

**AST 446 Multi-Engine Instructor Flight**--2 hours. The advanced flight theory and skills as required for the FAA Multi-engine Flight Instructor rating. Covers aspects of instructing as related to a multi-engine airplane. A Multi-engine Flight Instructor's rating is required for completion of this course. Prerequisite: Flight Instructor Certificate or consent of instructor.

*Preferred Effective Term: Summer I 2006*

### **PROGRAM REVISIONS**

#### **COLLEGE OF TECHNOLOGY INDUSTRIAL AND MECHANICAL TECHNOLOGY B.S. AUTOMOTIVE TECHNOLOGY MANAGEMENT**

##### **Executive Summary:**

To better streamline the technology portion of the Automotive Technology Management Program (A TM) and in order to comply with both the National Association of Industrial Technology (NAIT) and the National Automotive Technicians Education Foundation (NA TEF) accreditation requirements, significant refinements to the current automotive electronics are essential. In cooperation with the ECT department, ECT 160 will have a section specifically tailored to automotive electronic fundamentals. Additionally, other courses including IMT 233 and IMT 335 will have significant portions of coursework regarding automotive electronics reorganized to reflect these changes.

The requirement for PHYS 101/101L will be expanded to include the option to take PHYS 105/105L. Existing accreditation by NAIT requires four hours of physics, taught by physics professors. Either of these two courses, with their corresponding lab courses, will provide a solid foundation in physics, which is essential for Automotive Technology Management graduates. The option of taking either class provides for more possible solutions to course scheduling or course transfers and articulation agreements without the need for special processing.

MATH 115 better prepares students for IMT 215 Graphic Analysis. In order to enhance students' mathematical problem solving abilities, MATH 115 will become the minimum math requirement for the A TM program, raising the prior standard of MATH 111.

The Automotive Technology Management Advisory Committee (A TMAC) has addressed the need for graduates to be better prepared to work with statistics. With the requirement of MATH 115 for entrance into IMT 215, students will be better prepared for the trigonometry section of IMT 215, thus allowing more instructional time to be spent with statistics.

The need for IMT 130 Introduction to Technology will be satisfied by IMT 132 Introduction to Automotive Engines. Thus, IMT 130 will no longer be required in the ATM program.

HLTH 212 Introduction to Industrial Health and Safety is added to the major to ensure graduates have foundational knowledge in regard to safety within the occupational environment.

IMT 215 Graphic Analysis will have a prerequisite of MA TH 115 or consent of the instructor as IMT 215 also serves other majors within the IMT Dept.

IMT 233 Basic Automotive Service and Testing will have its course title changed to Engine Systems and Controls, and will have the content modified accordingly. Essentially, electronics coursework will be shifted to IMT 136, while the tire and wheel content will shift to IMT 239. Engine controls content will be pulled from IMT 335 and become core content in this course, IMT 233.

IMT 239 Chassis Systems will be created covering steering, suspension, and braking systems. The bulk of existing material from IMT 434 and existing material from IMT 233 and IMT 335 will come together in this course to better organize the content into a more cohesive format. Removing a 400 level class and replacing it with a 200 level class is more reflective of the actual content and strategies previously used in IMT 434. No detrimental effects from the move regarding hours at the 3/400 level are anticipated.

The requirement for MCT 295 Industrial Computer Applications will be dropped. Students needing to fulfill the Information Technology Literacy requirement through coursework would be advised to take MCT 295. However, if students pass the ITL exam, that will be considered acceptable. If a student, perhaps a student who has changed majors or transferred, has received credit for, or wanted to take another ITL approved course, that too, would be acceptable. No significant reduction in students taking MCT 295 is expected. This change simply alleviates special administrative paperwork.

IMT 335 Electronics Diagnosis will have its course title changed to Body Control Systems, and will have the content modified accordingly. New material will be added regarding vehicle communications as advised by the A TMAC. In addition, due to the fact that Air Conditioning is now significantly electronically controlled, HV AC material will be removed from IMT 434 and incorporated into this course.

IMT 336 Automotive Materials and Related Products will have its course title changed to Engine Fuels and Lubricants. As advised by the NAIT visiting team, course material regarding alternative fuels will become a core requirement of the ATM program. The paint portion of the course will be removed and a new elective course IMT 338 Paint and Refinishing will be created in the future.

IMT 337 Thermo Systems will be replaced by IMT 435 Contemporary Engines. IMT 337 once served many majors within the College of Technology. Currently, only Automotive Technology Management Majors are required to take this course. While thermo systems play an important role in automobiles, less than 20% of the coursework in IMT 337 used the automobile for application. IM1435 addresses thermodynamic issues and is specific to automobiles.

IMT 351 Cooperative Industrial Practice will become an added requirement of the major. The ATMAC has addressed this issue time and time again citing the need for practical experience in the automotive field as an essential element ensuring success for the graduate.

IMT 432 Parts Distribution and Marketing will become a core class in the Automotive Technology Management Program as recommended by the NAIT visiting team and the ATMAC.

IMT 434 Allied Systems will be banked. Its course content will move into IMT 239 and IMT 335. It is illogical to teach brakes, suspension, steering, and HV AC, to the depth required of the program, in the same three credit hour course.

IMT 435 Contemporary Engines will have its title changed to Engine Thermodynamics to better reflect the course content. IMT 435 will then replace IMT 337 as a core course in the Automotive Technology Management Program.

IMT 436 Diesel Engines will become a core course in the Automotive Technology Management Program as advised by the ATMAC (advisory committee).

IMT 439 Fixed Operations Management will be created addressing the financial, personnel management, and strategic planning strategies related to automotive businesses. The ATMAC addressed the need for such skills citing a lack of initial performance in such items as interpreting a spreadsheet, planning a logical course of action, and interviewing skills. This IMT 439 course will become a core course in the ATM program with IMT 433 as the prerequisite.

MCT 497 Problem Solving Techniques will be removed from the program as the need for the course is no longer apparent, based on personal interviews with recent graduates.

The requirement for MCT 492 Industrial Supervision will be modified so that either MCT 492 or MGT 301 Survey of Management can be taken. These two courses, based on graduate interviews, currently serve essentially the same purpose for the Automotive Technology Management Program.

These changes will provide for an Automotive Technology Management Program that is responsive to the needs of the automotive industry. Based on sound teaching principles, advice from the NAIT visiting team, and on repeated advice from the Automotive Technology Management Advisory Committee, these changes will move the program in a positive direction. A more defined, refined, and perhaps most importantly, a more marketable program will result.

### **Rationale:**

All changes proposed to the Automotive Technology Management Program stem from interviews with recent graduates and advice from the Automotive Technology Management Advisory Committee (ATMAC), colleagues, and industry professionals. Many proposed changes are a result of issues addressed by the 2004 visiting team from the National Association of Industrial Technology (NAIT) that accredits our Automotive Technology Management Program. Further support for the changes is addressed

in the following paragraphs.

As cited by NAIT in the last accreditation on-site visit, the Automotive Technology Management Program needs new technology in the lab. Further stated, we should be engaging students in the very latest technology of hybrids and alternative fuels. Since the NAIT visit, we have obtained six relatively new vehicles from Subaru of Indiana America in Lafayette, IN. Cummins Engine Inc. of Columbus has donated an engine and testing software. However, a great need still exists for new technology. With traditional funding shrinking each year, the Automotive Technology Management Program must seek new avenues for revenue. At present, new grant work and research in the automotive technology realm in areas such as bio-diesel, alternative fuels such as E-85, hybrid technology, and many other areas are hampered by our 30 and 40 year old testing equipment. While many grants will fund equipment, virtually none will provide enough funding to allow for an entire update to the lab. The competition among institutions is too great to allow for such expenditures.

The Automotive Technology Management Advisory Committee (A TMAC) has reaffirmed what the NAIT visiting team stated: we must update our program. It was argued by the faculty that since we don't train technicians, our level of technology could be a few years behind what is currently being manufactured. However, the A TMAC members, while agreeing that we indeed do not train technicians, we educate technical managers that must have a grasp of the current technology. Thus, we should strive to stay at the forefront of the technology, instead of several years behind. They also alluded to the fact that staying at the forefront of technology means staying ahead of the manufacturers.

At each of the last three ATMAC meetings the members stated emphatically that the Automotive Technology Management Program must seek and achieve accreditation by the National Association of Technicians Education Foundation (NA TEF). In addition to our current NAIT accreditation status, accreditation by NA TEF will allow the major automotive manufacturers such as OM, Ronda, Ford, Toyota, and Daimler Chrysler to donate or distribute new vehicles, equipment, and technology for our program. Acquiring NA TEF accreditation requires only minor, virtually insignificant changes to our curriculum, but does require faculty members teaching the core NA TEF courses to be certified by the National Institute of Automotive Service Excellence.

Addressing the needs of the Automotive Technology Management Program, in order to move the program into the lead position of seventeen such institutions throughout the United States, we must rework our curriculum. Simply stated, we must update current course content and then redistribute the content into courses that meet not only today's needs but has the ability to meet tomorrow's needs as well. Working with other educational institutions, NAIT, NATEF, the ISU ATMAC, and SAE (Society of Automotive Engineers), a revised program proposal has been derived. Several courses must be redefined, a few courses should be eliminated, and a few courses should be added.

One of the more critical changes addressed at all three A TMAC meetings is the need to become certified by the National Automotive Technicians Education Foundation (NA TEF). Doing so will allow automobile manufacturers to more easily support our A TM program through donations of new vehicles, equipment, and training aids. While the A TM program does not specifically train technicians, we do develop knowledge, skills, and abilities of students within the automotive technology realm, which somewhat



models the typical technician training program. Seeking core NA TEF accreditation (four areas instead of the full eight) is feasible and quite practical.

*Current Catalog Copy:*

**Automotive Technology Management Major (68 semester hours)\***

**Required courses:**

**Industrial and Mechanical Technology:** 103--3 hrs.; 130--2 hrs.; 132--3 hrs.; 215--3 hrs.; 233--3 hrs.; 329--3 hrs.; 333--3 hrs.; 334--3 hrs.; 335--3 hrs.; 336--3 hrs.; 337--3 hrs.; 430--1 hr.; 433--3 hrs.; 434--3 hrs.

**Manufacturing and Construction Technology:** 295--3 hrs.; 370 or 371--3 hrs.; 492--3 hrs.; 497--3 hrs.

**Electronics and Computer Technology:** 160--3 hrs

**Mathematics:** 111--3 hrs. or 115--3 hrs.

**Physics:** 101--3 hrs.; 101L--1 hr.

**Chemistry:** 100--3 hrs.; 100L--1 hr.

**Management:** 301--3 hrs.

\* Includes 17 hours of General Education

*Proposed Catalog Copy:*

**Automotive Technology Management Major (69 semester hours)\***

**Required courses:**

**Industrial and Mechanical Technology:** 103--3 hrs.; 132--3 hrs.; 215--3 hrs.; 233--3 hrs.; 239--3 hrs.; 329--3 hrs.; 333--3 hrs.; 335--3 hrs.; 336--3 hrs.; 351--3 hrs.; 430--1 hr.; 432--3 hrs.; 433--3 hrs.; 435--3 hrs.; 436--3 hrs.; 439--3 hrs.

**Electronics and Computer Technology:** 160--3 hrs.

**Health, Safety, and Environmental Health Sciences:** 212--3 hrs.

**Manufacturing and Construction Technology:** 370 or 371 or 372--3 hrs.

**Mathematics:** 115--3 hrs.

**Physics:** 101--3 hrs.; 101L--1 hr. or 105--3 hrs.; 105L--1 hr.

**Chemistry:** 100--3 hrs.; 100L--1 hr.

**Management:** 301--3 hrs. or Manufacturing and Construction Technology: 492--3 hrs.

\* includes 14 hours of General Education

*Preferred Effective Term: Fall 2006*

# UNDERGRADUATE APPROVALS

## COURSE REVISIONS

### **COLLEGE OF HEALTH AND HUMAN PERFORMANCE: Health, Safety, and Environmental Health Sciences**

**HLTH 201 Introduction to Aviation Environmental Management**--3 hours. An overview of current environmental health related issues in aviation communities such as stormwater, noise, air pollution, SPCC (Spill Prevention, Control, and Countermeasure) compliance, environmental impact assessment, and environmental justice. The basic principles involved in pollution prevention and control technology and regulations related to those issues will also be discussed.

*Change credit hours to:*

**HLTH 201 Introduction to Aviation Environmental Management**--2 hours. An overview of current environmental health related issues in aviation communities such as stormwater, noise, air pollution, SPCC (Spill Prevention, Control, and Countermeasure) compliance, environmental impact assessment, and environmental justice. The basic principles involved in pollution prevention and control technology and regulations related to those issues will also be discussed.

*Preferred Effective Term: Fall 2006*