Online Bachelor of Science Delivery
University of North Dakota

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Bio: Harvey Gullicks
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- BSCE, UND 1976
- Master of Engr., Civil, UND 1979
- Ph.D., Civil, Iowa State Univ. 1987
- 20+ yrs of consulting: geotech, environmental, water, waste water, construction.
UND Online Engr. BS Delivery

- BSCE, BSME, BSEE, BSChE, & moving to BSGeoE
- Total UND Engineering Undergraduate Enrollment: ~ 1800 students
- Online Students make up 20 to 45 percent of the individual program total student base
- Many Distance Advisees Not Currently Taking UND Courses, Taking Pre-approved Courses Elsewhere for Transfer to UND $avings
Online Delivery

- Began Distance Engineering Delivery in late 1980s

- Typical Distance Student Circumstances:
  - Employed full-time or in military
  - Technical or Associates Degree or non-Engr Degree
  - Significant work experience in design & engineering profession
  - Considered Transfer Student at UND
  - Need PE licensure for career advancement
  - Limited access to Higher Education Institutions
    - Location or Work Schedule
Transfer Student Graduation Requirements

- Minimum 125 College/University Cr. Hrs. Completed.
- Minimum 60 Cr. Hrs. Completed from 4-year Degree Granting Institution.
- Minimum 30 Cr. Hrs. Completed from UND.
- Minimum 22 Cr. Hrs. of 300 & 400 level Engineering Discipline Courses Completed from UND, Including Senior Capstone Design Sequence.
Distance Student Experience Credit

• ENGR 102 Professional Assessment & Evaluation: Opportunity for Work Experience Credit
• For Example In BSCE – Possible waivers:
  – Intro to Civil Engineering
  – Laboratories
  – Graphical Communication/AutoCAD
  – Digital Terrain Modeling (Civil 3D)
  – Computer Applications in Engineering
  – Surveying
  – 6 Cr.Hrs. Technical Electives/Internship
Effect on On-Campus Students

• Design Project Teams in Courses and Capstone Design Sequence – Mixture of On-Campus & Distance Students
  – Real-world Project Communication/Coordination
  – Benefit from Distance Student Experience
• On-line lectures available if missed
• Improved course access when on-campus course scheduling conflicts exist/lecture times overlap.
Lecture Delivery

• Initially used Screenwatch to record lectures for online streaming.
• In 2010, switched to using Tegrity to record lectures for online streaming.
• Distance students can download lectures for viewing at their convenience & repetition viewing.
• Instructors make heavy use of Power Point presentations & Mimio Software/Wacom Tablets/Smart Boards.
• Instructors post notes/Power Point slides on Blackboard prior to lecture for student access.
Homework/Project & Exams

• Same homework/project assignments & deadlines for On-campus & Distance Students.

• Exams posted on Blackboard for Password-Protected, Limited Time Window Access by PROCTORS only.

• Sitting time for exams same as for on-campus students.

• Immediate, multiple means completed exam submittal by PROCTOR:
  – Scanning & Blackboard pdf posting
  – Facsimile or Instructor email
  – & postal delivery of original exam
Laboratories Delivery

• Laboratories required in Chemistry, Physics, & specific engineering discipline.
• If laboratories of acceptable equivalency have not been transferred into UND, the UND labs are required & must be taken on the UND campus.
• Each 1-credit hour full semester lab experience is condensed into a 40-hr week summer session lab experience for distance students.
Transfer Credit Evaluation

- Registrar evaluates courses for acceptability by UND.
- SEM Undergraduate Experience Coordinator does initial evaluation of courses for UND Essential Studies & Dept. BS curriculum using status sheet.
- Dept. Faculty Advisor reviews status sheet & clarifies any questions or corrections required.
- Appropriate petitions filed by student.
Transfer Credit

- Dept. Faculty Advisors have authority to accept Math, Physics, Chemistry & Engineering transfer courses from other institutions in lieu of UND Math, Physics, Chemistry & Engineering courses.
  - Calculus-based Physics & Engineering is critical requirement in review

- NOT AS EQUIVALENT courses (courses petitioned to UND Math, Physics, Chemistry departments for equivalency review/determination).
University Residency

- University requirements for last 30 credit hours in residency are waived by petition to allow transfer of credit from other institutions.
- This is critical for effective advising, student progress & access to some courses.
ABET Accreditation

• UND does not approach accreditation of on-campus & distance deliveries as separate programs.
• Rather, the UND BS Dept. programs are each accredited as one Dept. program, which utilizes multiple modes of education delivery.
• Critical that advising of distance students protects the rigor of your program.
  – Ensure credit not given for algebra-based physics, statics, mechanics of materials, & engineering transfer courses.
  – Waive course prerequisites only w/good rationale.
ABET Accreditation

• Prepare for extra ABET distance delivery scrutiny:

• Proctor concerns
  – Good proctors: library, church, community college, university, human resource personnel

• Delayed exam taking concerns
  – Keep proctor access window short as reasonable
  – Impress on students: ethical issues, importance for maintaining program accreditation for their graduation & future graduates, student consequences of cheating
  – Restrict materials & technological devices during testing: cameras, cell phones, calculators, notes, books, etc.
ABET Accreditation

• Advising Concerns
  – Distance students = transfer students: Rigorous review of transfer credits & waivers for work experience
  – Enforce course prerequisites with academic advisement registration holds & course registration permission numbers system. Email documentation.
  – Work & course load: <6 cr.hr. if working full time
  – Advising must present options to take courses from other institutions for later transfer. Frequent requests to review courses for transfer acceptability. Email documentation.
  – Faculty advising load: Distance students take 3 times longer to advise than on-campus students. Financial aid & collaborative (multi-inst.) course considerations, too.
Best Practices in Engaging Students

- Assigning problems and design projects that incorporate real-world experiences and team effort.
  - Entrepreneurship
  - Competition
  - Reporting/Presentation
  - Software Appl.

- Wiki, WIMBA Classroom, Skype CITRIX & other interaction/comm. between design team members.
Best Practices (Continued)

- Respond to student questions in a timely manner.
- Be **FIRM** about submittal deadlines, but **FAIR**.
Lessons Learned

• Many student inquiries/varying motivation:
  – Mail-order degree to fully informed expectations
  – Age & experience → maturity, > academic performance

• More demanding academic advising

• Students need connection point/person

• Initial faculty resistance (advising by champions) → Course instruction for overload pay → Required faculty advising equity later.
  – Student fees revenue source

• Director/support personnel critical.
Retention

• Many applications for admission to UND
• Course Enrollments: 30 to 45 % of distance student admissions
  – Math prep factor
  – No prior calculus often = no success
• Retention: 20 to 25 % of admissions continue after 1\textsuperscript{st} or 2\textsuperscript{nd} semester
• Graduation: 3 to 9 years to graduate.