I. Course Description
Drafting and Design II. Teaches production drawings and advanced operations in computer aided drafting (AUTOCAD Inventor). Prerequisite: CAD 201. Lecture 2 hours, lab 3 hours, total 5 hours per week. (3 credits)

II. Introduction
Instructor will use AutoCAD and other Design Software to teach advanced applications of Computer Aided Drafting and Design. Students will also cover a number Technical CAD/Drafting Skills that will be needed to pass the National Certification Drafting Exam by ADDA at the end of the semester.

III. Student learning Outcomes
Upon successful completion of this course, the student will be able to utilize and apply techniques in intermediate and advance 2D and 3D commands, display, editing and rendering commands; printing and plotting techniques; blocks, symbols libraries and complex working and assembly drawings.
Upon successful completion they will also possess the necessary knowledge to pass the ADDA National Certification Exam.

The student will give evidence that he/she has developed a basic understanding and skills in drawing using AutoCAD & Inventor by demonstrating:

A. Advanced CAD and drafting techniques.
B. Draw a variety of 3D drawings.
C. Maximize skills utilizing solid modeling commands.
D. Skills in 3D drafting and design.
E. Intermediate skills in 3D solid modeling and editing.
F. Building presentation drawings.
G. Developing a complete set of working drawings.
H. Team project skills.
Continued use of AutoCAD and Inventor 2014

Projects:
- TBA

IV. Instructional Methods

- Lecture
- Chapter Outlines (by Students)
- In Class Exercises
- Video Tutorials
- Online Video/Youtube Tutorials/Instruction
- Project Based Instruction

A. Each new unit of material will be discussed in class. It will be aided by the use of demonstrations, text references, and instructor lead tutorial sessions.

B. Chapter exercises, tests and assigned projects will be completed by the student.

C. Assignments will be completed by the students using AutoCAD and or Inventor software programs and turned in at the assigned due dates.

V. Instructional Materials


B. Materials and equipment to be used by instructor: DVDs, Digital and Hand Drawn Images, PowerPoint presentations, and Chapter Exercises, CD’s, On-line tutorials, Digital Presentations and a variety of other multimedia devices.

C. Materials, Equipment and nontangibles to be provided by the student:
   - Portable Hard Drive
   - Good Attitude
   - Good Work Ethic
VI. Course Content

1. Advanced orthographic Views
2. Advanced Notations
3. Advanced Sections
4. Exploded Views
5. Assembly Drawings
6. Material Lists
7. Callouts/Balloons
8. GDT Identification and placement
9. Identifying and utilizing multiple types of dimensioning methods
10. Thread(s) Identification, Callouts & Terminology
11. * Introduction to Gears
12. * Introduction to Piping Design
13. * Introduction to Basic Topography and Civil Engineering Terminology and mapping Techniques

* Items 11, 12 and 13 are as time permits.

Proposed Chapters to be covered in Engineering Drawing and Design text book

Chapter 8 Multi Views (review)
Chapter 9 Auxiliary Views(review)
Chapter 10 Dimensions and Tolérances (review )
* Chapter 11 Fasteners/Springs (Application and uses of:)

Chapter 13 GDT – Geometric Dimensioning and Tolerancing(only symbology review)
Chapter 17 Belt and Chain Drives (Applications and uses of:)
Chapter 18 Welding Process and Representations
Chapter 21 Piping(Introduction to Terminology and Graphical Identification)
Chapter 22 Structural Design and Drafting(Introduction with Terminology and Graphical Identification)- time permitting
Chapter 24 Civil Design and Drafting(Introduction with Terminology and Graphical Identification)- time permitting
Chapter 26 Electrical Design and Drafting(Introduction with Terminology and Graphical Identification)- time permitting

VII. Evaluation

The numerical range for grades will be:

A = 91 - 100 Drawings/Assignments ........................................50%
B = 81 - 90 Tests/Quizzes ..................................................50%
VIII. Attendance

Regular attendance at classes is required. When absences from a class becomes necessary, it is the responsibility of the student to both inform the instructor prior to the absence and schedule makeup time after the absence. Frequent unexplained absences may result in a dismissal from the course. The student is responsible for making up all work missed during an absence.

IX. Cheating Policy

Cheating Policy
Students in the CAD/Architecture & Game Technology program will be held to the highest and strictest level of ethical educational conduct. Suspicion of Cheating &/or Plagiarism will result in an Incomplete “I” grade for that project, test or homework assignment. Upon review if it is determined that the student was in violation of the schools cheating policy, he or she will receive the Grade of “F” which will be calculated as a ZERO “0” averaged in with other grades for the project automatically, may receive an “F” for the course and will have to repeat the course in order to graduate. If the severity of the offense is enough as to warrant it, the student may be kicked out of the CAD program all together.

Cheating / Plagiarism may be defined as but not limited to the following for this curriculum.
- Turning in anything you did not do 100% yourself if it is an “individual” non-team project.
- Copying ANY part of someone else’s work
- Making the effort to copy or steal someone else’s work
- Taking someone else’s CAD electronic file and manipulating it to give the appearance that it is your own work.

X. Withdrawal Policy

Student Initiated Withdrawal Policy

A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

a. If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.

b. After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of “W.” A grade of “W” implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.
c. After that time, if a student withdraws from a class, a grade of “F” or “U” will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance.

A retroactive grade of “W” may be awarded only if the student would have been eligible under the previously stated policy to receive a “W” on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Late withdrawal appeals will be reviewed and a decision made by the Director of Student Services.

No-Show Policy

A student must either attend face-to-face courses or demonstrate participation in distance learning courses by the last date to drop for a refund. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to attend/participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student’s financial aid award.

Instructor Initiated Withdrawal

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (DE classes) in each class throughout the semester.

When a student’s absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for Distance Education (DE) courses, a student may be withdrawn due to non-performance. A student should refer to his/her DE course plan for the instructor’s policy.

In accordance with the No-Show Policy, a student who has not attended class or requested/accessed distance learning materials by the last day to drop the class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (DE class), the last date of attendance/participation will be documented. Withdrawal must be completed within five days of a student’s meeting the withdrawal criteria. A grade of “W” will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of “F” or “U” except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student’s academic file.
The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor.

XI. Disability and Diversity Statements

If you are a student with a documented disability who will require accommodation in this course, please register with the Disability Services Office located in the Counseling Center for assistance in developing a plan to address your academic needs.

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.