**BC 4010: History of the Construction Industry**

**Georgia Institute of Technology**

**School of Building Construction, College of Design**

**Spring 2018 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Office hours:** Room 226, Caddell Building By appointment

**Class Days/Time/Place:** Tu & Th 4.30-5.45 pm, Room 325, Clough Building

**Course Description and Objectives**

This course centers on the construction industry in all its facets. The intention is to ensure that students taking it are provided with an in-depth understanding of how today’s industry is organized and its particular characteristics, how the industry evolved from early times to the present day and where the industry may be heading in the future. Equipped with this knowledge, graduates will be in a better position to understand their role in whichever sector of the industry they choose to build their careers, and to contribute to positive change and improvement in how the industry serves its clients.

It should be emphasized that this course is neither a history of architectural or engineering design, nor of construction technology, but concentrates rather on industry structure, organization and the way it delivers its products.

The course is organized around three themes:

1. Today’s construction industry: the emphasis will be on identifying the particular characteristics that define the industry and which make it distinctive from other sectors of the economy.

2. Historical evolution: how today’s industry was formed, starting in ancient times and continuing through:

- Medieval period (1100 – 1350)

- Renaissance (1350 – 1730)

- Industrial revolution (1750 – 1850)

- Global industrial consolidation (1850 – 1900)

- 20th Century to current times

While a chronological order will be followed, this will be overlaid at each period with a consistent list of specific industry topics, such as key players, legal framework, project management, quality control, training, time & cost control, regulation, etc.

Concentration will be placed on the European roots of our industry and on developments in North America. One session will focus on how selected country’s construction industries have developed in different directions, and what can be learned from this.

3. Future trends and directions: arriving at the end of the story, today’s industry will be re-examined by summarizing what has been learned, addressing current trends and speculating on future longer-term directions.

There are 30 periods of 1:15 hours each, comprising a 0:45 – 1:00 hour lecture. Preparatory reading and some occasional homework will be assigned prior to each class.

**Learning Outcomes**

* **Familiar at each stage of history with:**
* The key players involved.
* How projects were financed.
* Design and construction processes, procurement and selection.
* Legal and regulatory framework
* Sources of labor and materials.
* Technological advances
* Management of projects including quality control
* **Understand:**
  + How the American construction industry of today is structured and organized to deliver its products and services.
  + How the industry evolved over time.
  + Where it may be heading in the future.
  + Some key differences between the US and other countries’ construction procedures.
* **Be able to:**
  + Conduct historical research and present the findings.
  + Recognize the great achievements of the industry.
  + Carry away a sense of pride in the industry of which we are part.

**Course Requirements**

A working knowledge of European and American history will be a distinct advantage.

Students are expected to attend class regularly, read material assigned and participate fully in discussion. During an early stage of the course, students will select a research paper topic.

The research paper will make a contribution to one of the course themes. It should be targeted at a minimum of 2,000 words plus tables and illustrations and will follow the guidelines of the Chicago Manual of Style. A one page abstract is required, followed by a review draft and the final report. This will be presented to the class orally. Instructor guidance will be provided throughout.

In addition bi-weekly homework assignments will be given and responses graded.

Grading will be:

- Attendance. . . . . . . . . . . . . . . . 15 points

- Contribution to class activities 10 points

- Bi-weekly assignments. . . . . . 15 points

- Research Paper. . . . . . . . . . . . 60 points

Letter grades awarded will be consistent with college practice.

**Attendance Policy**

Attendance is important and will be recorded. There is a consistent thread that runs through the course and any interruption will be detrimental to the student. Absences however are sometimes unavoidable but must be advised beforehand and supported. If absent, please advise beforehand and arrange with instructor a make-up time. If fail to turn-up or to request a time, students are advised it will affect their grading for that component (15 points overall, roughly 0.5 points per infraction). Arrangements should be made with the instructor for make-up tutorials. Students will be notified of this grade throughout the duration of the course. Please refer to the Institute Absence Policy (<http://www.catalog.gatech.edu/rules/4/>).

**Class Participation**

Class participation and interaction is expected during discussion of reading assignments and post-lecture reviews. This contribution to class activities, which counts as 10 points or 10 percent of the total grade, can also include talking to the instructor one on one after class. Students will be notified of this grade throughout the duration of the course.

**Reading Assignments**

There is no single text that covers the full breadth of this course. A listing of core reading texts will be handed out as the course proceeds and will be supplemented with optional background reading. Material relevant to the course subjects will be posted on T-Square.

As noted a grasp of world history is essential for a proper understanding of context. It is required therefore that all students purchase:

*The Penguin Atlas of World History*, Volumes 1 & 2, Hermann Kinder and Werner Hilgemann (2003 issue).

**Additional Material**

Students may store course materials on any device of their choosing, or may acquire a 2” three-ring binder for this purpose. Prior to each lecture period a hand-out will be posted on T-Square. This will include lecture headings, supporting material, reading list, etc. Following each lecture, any visuals used will also be posted.

**Additional Information**

All cell-phones, blackberries, etc. will be turned off during class.

In case of emergency (i.e. fire, accident, criminal act), call the Georgia Tech Police at 404-894-2500.

Students with disabilities requiring special accommodation must obtain an accommodation letter from the ADAPTS office ([www.adapts.gatech.edu](http://www.adapts.gatech.edu)) to ensure appropriate arrangements.

The Georgia Tech Honor Code naturally applies to this course. Make yourself familiar with it: [www.catalog.gatech.edu/rules/18b.php](http://www.catalog.gatech.edu/rules/18b.php) As the main grading component is a research paper, you will be expected to follow high ethical standards. Plagiarism is not tolerated and if detected will be instant grounds for a fail grade.

**COURSE SCHEDULE 2018**

**(all periods will be from 4.30 pm to 5.45 pm in Clough Building, Room 325)**

**1. TODAY’S CONSTRUCTION INDUSTRY\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| Month | Date | No. | Subject | Outline Content |
| Jan | 9th | 1. | Course Introduction | Purpose, objectives & expectations; rules of engagement; grading; term research papers; reading; terminology; review of syllabus. |
|  | 11th | 2. | Construction Industry Overview | Sectors, scale, characteristics, organization.  . |
|  | 16th | 3. | Financing & Delivering Projects | Project financing, facility development process, delivery options & procurement. |
|  | 18th | 4. | Contracts, Codes, Estimating, Insurance & IT. | Industry contracts, codes & regulations, estimating & measurement, risk management, information technology. |
|  | 23rd | 5. | Key Players | Architects, Engineers, General Contractors, Design-Builders, Project/Construction Managers, Owners/Clients. |
| Jan | 25th |  |  | *Research Paper Topic Selected* |
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**2. HISTORICAL EVOLUTION\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| Month | Date | No. | Subject | Outline Content |
| Jan | 25th | 6. | Classical Times - 1 | Relevance of classical period, Egypt – the Khufu pyramid. |
|  | 30th | 7. | Classical Times – 2 | Greece – the temple complex at Epidauros; Roman approach to design & construction; Vitruvius. |
| Feb | 1st | 8. | Medieval Period - 1 | Roots of the ecclesiastical building boom in 12th C.; Typical cathedral (David Macauley); Sources of Finance. |
|  | 6th | 9. | Medieval Period – 2 | Design & construction |
|  | 8th | 10. | Medieval Period - 3 | Contracts, materials, labor & management |
|  | 9th |  |  | *Research paper abstract due* |
|  | 13th | 11. | Renaissance | What was the Renaissance? Building in Florence 15th – 16th C. Brunelleschi’s dome, Alberti, N.Europe & Spain. |
|  | 15th | 12. | 17th Century England | Developments in England; Fire of London & its aftermath. |
|  | 16th |  |  | *Abstract Reviews Complete* |
|  | 20th | 13. | 17th Century France & America | Building of Versailles; Colonial America; Canada. |
|  | 22nd | 14. | Industrial Revolution - 1 | Early stages in 18th C. England; emergence of architects & engineers; British Canals |
|  | 27th | 15. | Industrial Revolution – 2 | Construction, management & training; measure and value contracts |
| Mar | 1st | 16. | Industrial Revolution – 3 | Transformation of British building industry; emergence of general contracting; parallel developments in France. |
|  | 6th | 17. | 18th Century America | Developments to 1800; Mexico. |
| Mar | 8th | 18. | USA – 19th Century - 1 | Developments up to Civil War; Corps of Engineers. |
|  | 13th | 19. | USA – 19th Century - 2 | Post-civil war to 1900 – architects & engineers. |
|  | 15th |  |  | *Research paper Draft due* |
|  | 15th | 20. | USA – 19th Century - 3 | Post-civil war to 1900 – general contracting; labor unions. |
| Mar | 19th |  | Spring Break |  |
|  | 27th | 21. | USA- 19th Century - 4 | Review of American industrial revolution; technological changes & effect on building industry. |
|  | 29th | 22. | USA – 20th Century - 1 | 1900 to WW II – rise of unions, consolidation of general contractors, architects and engineers. |
| Apr | 3rd | 23. | USA – 20th Century - 2 | Post-war period to 1970 – fall of the unions, owner’s revolt. |
|  | 5th | 24. | USA – 20th Century - 3 | 1970 to Today – a changing industry; experiments with industrialization. |
|  | 10th | 25. | International Directions – 19th & 20th C. | Early stages of globalization; prefabrication trade; export of British railroad know-how; international operations by US firms. |
|  | 12th | 26. | International Case Studies | Examination of three countries: Great Britain, France & Japan. Is there something to learn? |

**C. FUTURE TRENDS AND DIRECTIONS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| Month | Date | No. | Subject | Outline Content |
| Apr | 17th | 27. | Conclusions | What have we learned from our History lessons relevant to the industry today? |
|  | 19th | 28. | Future Trends | Short & long term trends underway; future directions? |
|  | 21st |  |  | *Final Research Paper Due* |
|  | 24th  &26th |  |  | Research Paper Presentations |