

Back-end Development II INF 656 (VA)

Fort Hays State University
Robbins College of Business and Entrepreneurship
Department of Informatics
Ravindra Ramsey Muvva

1. COURSE INFORMATION

Credit hours: 3.0

Semester and year: Fall 2019

Course prerequisites: Back-end development I, Front-end web development I

Class time: Tuesday 11:30am – 12:45pm, Thursday 11:30am – 12:45pm

Virtual course: Material will be available online after on-campus class. The on-campus class will be aggregated to the on-line course

2. INSTRUCTOR INFORMATION

Instructor: Ravindra Ramsey Muvva

E-mail: rmmuvva@fhsu.edu

Office: Hammond Hall 151

Office hours: Tuesday 8:30–9:30 am, Thursday 10:30–11:30 am

Virtual office hours: Sunday 5:30–7:00pm

Contact policy: please, e-mail to rmmuvva@fhsu.edu for requests and appointments. If I take more than 15 days to answer, I probably lost your e-mail. Please, kindly send it again.

3. TEXTBOOK AND COURSE MATERIAL

Required textbooks: none

Supplementary book(s) and article(s): to be defined

YouTube playlist: https://www.youtube.com/playlist?list=PLVcJlv99DEiZ4PTi_Jxv5vIAVTfZCGoOu

(Please, subscribe to the playlist, so that you will be notified when I upload a video)

Code repository: Available soon

Technology requirement: a PC supporting MongoDB, Node.js, and Eclipse. Bring Your Own Device.

4. COURSE DESCRIPTION

The MongoDB, ExpressJS, AngularJS, and Node.js package, known as the “MEAN stack”, offers a robust alternative to the traditional LAMP stack based on Apache, MySQL, and PHP. This course details advanced concepts and recent frameworks for server-side programming included in the MEAN stack, as well as several best practices for improving the design, security, integration, and scalability of web applications. At the end of the course, as a full-stack web developer, you will be able to define and implement strategic decisions for the success of versatile web platforms.

5. LEARNING OUTCOMES

Learning outcomes:

1. Illustrate the different technologies for back-end web development
2. Assemble back-end environments based on JavaScript and Node.js
3. Develop advanced web application using Object Oriented Programming
4. Employ document-oriented databases
5. Create web applications and RESTful APIs using the MVC pattern
6. Design and develop a complete architecture for web services

6. TEACHING, LEARNING METHODS, & COURSE STRUCTURE

Delivery Method: lectures, labs, videos, readings, quizzes, problem sets, and projects

Course Structure:

1. Server-side development using the MEAN stack
2. Resources for advanced back-end development
3. Node.js: architecture and functions
4. Server-side development with Node.js
5. Document-oriented databases
6. Designing one-page applications using AngularJS and Express
7. RESTful Application Programming Interfaces
8. Web application development

7. COURSE SCHEDULE

This schedule is tentative and might change during the semester depending on how the course evolves. The content is subject to change depending on students' interest and progress. Students will be notified of the changes through announcements either in the class or at the Blackboard course site

Module / Date	Content
Week 1	Introduction to MEAN stack
Week 2	Exploring Current Resources
Week 3	Introduction to Node.js
Week 4	Node.js basics
Week 5	Node.js advanced concepts
Week 6	Document-oriented databases
Week 7	AngularJS and Express
Week 8	AngularJS and Express
Week 9	RESTful APIs
Week 10	RESTful APIs
Week 11	RESTful APIs
Week 12	Full stack web development planning
Week 13	Full stack web development - development
Week 14	Full stack web development - development
Week 15	Full stack web development testing

Week 16	Final project review: feedback and presentations
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8. ASSESSMENT METHODS AND GRADING SCALE

Undergraduate level

There are 100 points for this course. The grade you earn for this course depends on the total number of points you earn throughout the semester. The assessment methods and grading scale are as follows.

- **Assignments: 40 points.** Assignments consist in 4 coding activities each worth 10 points.
- **Final project: 60 points.** The final project consists in designing and implementing a complete application. The application must use Internet connection to exchange data.
- **Extra activities: up to 50 points**
You are not required to realize extra activities. However, you can use them to gain points towards your final grade. You will be notified during the course about extra activities.

Graduate:

There are 200 points for this course. The grade you earn for this course depends on the total number of points you earn throughout the semester. The assessment methods and grading scale are as follows.

- **Assignments: 40 points.**
Assignments consist in 4 coding activities each worth 10 points.
- **Challenges: 60 points.**
Challenges consist of scenarios **requiring evaluation and reconstruction.**
- **Final project: 60 points.**
The final project consists in designing and implementing a complete application. The application must use Internet connection to exchange data.
- **Graduate presentation. 40 points.** The graduate presentation should be a professional-quality presentation given in-person or virtually to the class demonstrating a RESTful API not covered in the course but explored as a part of **additional research.**
- **Extra activities: up to 50 points**
You are not required to realize extra activities. However, you can use them to gain points towards your final grade. You will be notified during the course about extra activities.

Grading Scale:

- 90% - 100%: A (High Honors) outstanding and distinguished meeting of course objectives. Excellent understanding and appreciation for the depth and breadth of the subject matter. Requirements completed with distinction in regard to quality uniqueness and clarity of presentation. Independently conceived projects or activities related to the field which enhance



student's preparation for his professional objectives are developed and carried out in addition to assigned work.

- 80% - 89%: B (Honors) highly satisfactory and successful meeting of course objectives. Superior interest and understanding of the subject matter. Basic requirements usually completed in a superior manner in regard to the quality of work done, creativity of approach to the task, and general comprehension and knowledge of topic.
- 70% - 79%: C (Satisfactory) successful and respectable meeting of course objectives. Work is usually completed to meet minimum requirements of assignments; it is free of spelling and English grammar errors, ready at the appropriate time with sources of information clearly indicated, and is presented in the neat, business-like format expected of an employed individual.
- 60%-69%: D (Low Level Passing) work sometimes fails to meet minimum requirements of assignments and often is below the quality generally considered acceptable by an employer.
- <59%: U (Failing) failure to meet minimum course requirements. Work is often late, below acceptable standards for written or oral communication, and frequently indicates lack of understanding and/or interest in the subject matter.

9. STUDENT HELP RESOURCES

Students have access to academic services, technical support and student services at Fort Hays State University. You can find the resources online at <http://www.fhsu.edu/ctelt/services/Student-Help-Resources/>

10. COURSE POLICIES

Disclaimer: The Instructor reserves the right to make course changes if necessary, and will notify students of these changes through Blackboard announcements and e-mail.

Course material: all course content is available on Blackboard.

Class attendance: on-campus students are expected to attend classes.

Assignment due date: makeup (late) work is not accepted unless PRIOR approval has been granted by the instructor.

Procedures for assignment submission: assignments must be submitted via Blackboard (if available), unless differently notified.

Bonus points: bonus points are granted to students who participate in research projects and activities connected to the course.

Exam retake: students who finished the course with a grade of C or lower, and who want to improve their grade, have the option of retaking the exam; exam retake is only possible if students submitted their assignments on time during the course, or in specific circumstances that will have to be discussed with the instructor; procedures for exam retake will be explained by the instructor.

11. UNIVERSITY POLICIES

Tiger pact

I am a tiger. I belong to a strong unique family who strives for greatness and success. I instill integrity and confidence within others as well as myself. I incorporate honesty and responsibility in all that I do. I am the future.

11.1 Academic Honesty Policy

Membership in the FHSU learning community imposes upon the student a variety of commitments, obligations and responsibilities. It is the policy of FHSU to impose sanctions on students who misrepresent their academic work. These sanctions will be selected by appropriate classroom instructors or other designated persons consistent with the seriousness of the violation and related considerations... Students participating in any violation of this policy must accept the consequences of their actions. Classroom instructors and/or university review/appeals committees and administrators will assess the sanctions for violation of this policy. The seriousness of the violation will dictate the severity of the sanction imposed. More information can be found at http://www.fhsu.edu/academic/provost/handbook/ch_2_academic_honesty/

11.2 Statement of Accessibility and Services for Students with Disabilities

If you have a disability that may have an impact on your ability to carry out assigned course work and if you wish to seek any accommodations for this course, you must contact Services for Students with Disabilities (SSD). SSD is located in the Kelly Center, Picken Hall, Room 111, 785-628-4401. SSD will review your documentation and determine, with you, what academic accommodations are necessary and appropriate for you that can be accommodated in this course. All information and documentation of your disability is confidential and will not be released by SSD without your written permission. Students can find more information at <http://www.fhsu.edu/disability/get-access/> Instructors who need help to create instructional materials for students with special needs can seek help from Learning Technologies (LT), 785-628-4194.

11.3 Title IX

FHSU is committed to fostering a safe, productive learning environment. Title IX makes it clear that violence and harassment based on sex, gender and gender identity are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. This includes all types of gender and relationship violence: sexual violence or harassment, domestic and dating violence, and stalking.

If you wish to speak **confidentially** about an incident of gender and relationship violence, talk to someone at The Kelly Center, the Student Health Center, or the Options Sexual and Domestic Violence Campus Advocate who is housed in the Student Health Center.

If you wish to report an incident or have questions about school policies and procedures regarding Title IX issues, please contact Dr. Keegan Nichols, Associate Vice President for Student Affairs and the FHSU Title IX Coordinator knnichols@fhsu.edu. Or, you can report to Residential Life Staff or University Police, which are **non-confidential reporters**.

If you are unsure about the reporting status of an individual, ask them directly before disclosing sensitive information. If they are non-confidential, they can direct you to someone you can talk to in complete confidentiality, which does not have to be officially reported.

11.4 Concealed Carry Policy

Under the Concealed Carry Policy, individuals who carry a concealed handgun must have the handgun on or about their person at all times. Backpacks are appropriate for carrying a handgun as long as the backpack remains within the exclusive and uninterrupted control of the individual. A backpack or other bag used to carry a handgun must be within the immediate reach of the individual. In this course, the instructor may require students to place backpacks or other bags out of reach. The instructor will notify students in advance of this requirement so a student who carries a concealed handgun in a backpack or a bag may take steps to conceal the handgun on his or her person before arriving or otherwise plan accordingly. Alternatively, this course involves a lab where metal and/or explosive devices (ammunition) are prohibited by Federal Regulations due to the nature of the lab and for safety concerns. Concealed carry handguns will need to be properly stored prior to such labs. More information related to Concealed Carry can be found at <http://www.fhsu.edu/news/Fort-Hays-State-posts-policy-on-compliance-with-law-allowing-concealed-carry-of-handguns/>

11.5 Use of Computing Resources

Fort Hays State University (FHSU) provides computing resources and worldwide network access to its faculty, staff, and students for legitimate administrative, educational, and research efforts. As a member of the FHSU electronic community it is your responsibility to use computing resources ethically and responsibly. Members of the FHSU electronic community are expected to use computing resources ethically, and to exercise reasonable care in utilization of FHSU information systems or their components. More information related to privacy, responsibilities, things forbidden to do and use of email can be found at http://www.fhsu.edu/academic/provost/handbook/ch_1_computing_resources/

11.6 Withdrawal Policy

Students may withdraw full-semester courses through 11:59:59 PM CT on the 35th day of the semester (Learning Technologies (LT) will work with the Registrar's Office and Technologies Services (TS) to make the specific date for each semester available at the syllabus site). Students withdrawing during this time period will not receive any notation on their transcript. Students who withdraw after this period and through 11:59:59 PM CT on the 70th day of the semester will receive a notation on the transcript of withdrawal (W). No withdrawals after the 70th (LT will work with the Registrar's Office and TS to make the specific date for each semester available at the syllabus site) day of the semester. Students who withdraw completely will receive a notation on their transcript of the date withdrawn. Students receiving financial aid have additional responsibility and should contact the Office of Student Financial Assistance, 785-628-4408. (<http://www.fhsu.edu/registrar/academic-policies-and-information/>)

11.6. Proctoring Requirements (Virtual College courses only if applicable)

The Proctor Approval Form for the Virtual College courses along with the student's and the proctor's responsibilities can be found at

<http://www.fhsu.edu/virtualcontent.aspx?id=12884902424&terms=proctor>