2017-2018 IUCC Members:

Economou, Athanassios (CoD-ARCHI)
Fenton, Flavio (PHYS)
Forest, Craig (ME)
Hammer, Brian (BIOSCI)
Jordan, Jenna (INTA)
LeBlanc, Jude (CoD-ARCHI)
Lee, Suzanne (CoB)
Mayor, Rhett (ME -- IUCC Chair)
Millard Stafford, Mindy (BIOS-AP)
Moore, Elliot (ECE)
Parsons, Charles (CoB)
Pierron, Olivier (ME)
Pikowsky, Reta (Registrar)
Potts, Colin (Vice Provost)
Sankar, Lakshmi (AE)
Scott, David (CEE – IUCC Vice-Chair)
Shook, David (Modern Lang)
Stein, John (Dean of Students)
Venkateswaran, H (CoC-CS)
Wilkinson, Angus (CHEM & BIOCHEM)
Xu, Jun (CoC-CS)
Zhou, Chen (ISyE)
Faculty Exec. Board Liaison
UCC Student Representative
<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Peter Swine</td>
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<td>J. Schmidt</td>
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<td>Amy Hodges</td>
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<td>Sue Woodard</td>
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<td>Richard Baker</td>
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<td>Sphili Xupain [IC]</td>
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<td>Michael Goodman [Biosci]</td>
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Name

Dept/School
Institute Undergraduate Curriculum Committee
Academic Matters (Full Committee)
Minutes
Tuesday, September 5, 2017

Present: Mayor (ME) (Chair), Pikowsky (Registrar/Secretary), Forest (ME), Hammer (BIOSCI), Jordan (INTA), Millard-Stafford (BIOS-AP), Moore (ECE), Pierron (ME), Potts (Vice Provost), Sankar (AE), Shook (Modern Lang), Venkateswaran (CoC-CS), Zhou (ISYE)

Visitors: Hodges (Registrar), Hogarth-Smith (Registrar), Anton (IC), Barke (IAC-PUBP), Bush (IAC-NROTC), Goodisman (BIOSCI), Phillips (Ac. Eff.), Pikowsky (SPP), Racynski (CoC), Reinhold (IAC/NROTC), Spencer (BIOSCI), Schmidt-Krey (SOBS), Shepler (Fac. Bd. Liaison), Swire (Scheller), White (CoC), Woolard (Ac. Eff.)

Note: All action items in these minutes require approval by the Academic Senate. In some instances, items may require further approval by the Board of Regents or the University System of Georgia. If the Regents' approval is required, the change is not official until notification is received from the Board to that effect. Academic units should take no action on these items until USG and/or BOR approval is secured. In some cases, approval by the Southern Association of Colleges and Schools-CoC may also be required; in others, notification by the Institute will suffice. In addition, units should take no action on any of the items below until these minutes have been approved by the Academic Senate or the Executive Board.

Note: All votes are unanimous unless noted otherwise.

Start-Up Matters

1. Dr. Rhett Mayor (ME) was nominated and elected Chair of the Committee for 2017-2018.

2. Dr. Mindy Millard-Stafford (BIOS-APPH) was nominated and elected Vice Chair of the Committee for 2017-2018. The Vice Chair of the IUC will also serve as Chair of the Gen Ed Subcommittee as it now stands. This is under discussion.

3. At the next meeting, there will be more discussion to finalize the Subcommittees. Dr. Economou has agreed to continue service on the Study Abroad Committee. One additional IUCC member is needed. A volunteer has been identified and we hope to report the results at the next meeting. There is discussion about the Chair of the Gen Ed Subcommittee that will also be continued at the next meeting.
4. At the next meeting, the delegation of authority to the Registrar to act on certain types of petitions will be placed for a vote.

**Academic Matters**

1. A motion was made to *approve* a request from the College of Business to add the Ethics attribute to an existing course. This motion was seconded and approved.

   **Add Ethics Attribute to Existing Course – APPROVED**

   **MGT 4726: Privacy, Technology, Policy, and Law**

2. A motion was made to *approve* a request from the College of Computing to add the Ethics attribute to an existing course. This motion was seconded and approved.

   **Add Ethics Attribute to Existing Course – APPROVED**

   **CS 4726: Privacy, Technology, Policy, and Law**

3. A motion was made to *approve* a request from the School of Public Policy for a new course to include the Ethics attribute. This motion was seconded and approved.

   **New Course with Ethics Attribute – APPROVED**

   **PUBP 4726: Privacy, Technology, Policy, and Law (3-0-3)**

   **Note:** The Committee did request that the syllabi for all courses be modified to include the most up-to-date Office of Disability statement, how class participation is assessed, and if students are updated throughout a term with the class participation grade.

   **Note:** A question was raised about the importance of offering cross-listed courses (the same course offered with multiple subject codes). The Registrar explained that these courses were essential to degree programs since students are required to complete a set amount of major-related courses in their program of study.

4. A motion was made to *approve* a request from the School of Public Policy for a certificate modification. This motion was seconded and approved.
Certificate Modification – APPROVED

Pre-law Certificate

Cybersecurity and legal/policy issues in information security are a high priority in society, business, and the Georgia Tech curriculum. New legal standards governing privacy are evolving rapidly, and these two courses (taught in conjunction with Computing and Business) provide students with a firm foundation in legal analysis in this realm.

Add:

- PUBP 4725 / MGT 4725 / CS 4725: "Information Security Policy and Law." This course includes coverage of relevant US laws and discusses how cybersecurity policies and practices are constrained or enabled by law.

- PUBP 4726: "Privacy, Technology, Policy and Law" -- New Course Proposal is being made contemporaneously. MGT 4726 and CS 4726 are already approved for the LS&T minor and Pre-Law Certificate.

Electives: Choose three (3)

CS 4010 Introduction to Computer Law
CS 4280 Survey of Telecommunications and the Law
CS 4725 Information Security Law and Policy
CS 4726 Privacy, Technology, Policy, and Law
ECON 4300/4301 Economics of Information, Transaction Costs and Contracts
ECON 4320/4321 Economics of Technology, Innovation, and Entrepreneurship
ECON 4370 Law and Economics
HTS 3002 History of American Business
HTS 3006 United States Labor History
HTS 3085 Law, Technology, and Politics
INTA 3031 Human Rights in a Technological World
INTA 3301* International Political Economy
INTA 4060 International Law
MGT 2106** Legal, Social, Ethical Aspects of Business
MGT 3102** Managing Human Resources within a Regulatory Environment
MGT 3605 Principles of Commercial Law
MGT 3606 International Business Law
MGT 3608 Technology Law and Ethics
MGT 3609 Legal Aspects of Real Estate
MGT 3614 Law for Entrepreneurs
MGT 4010 Business Taxation
MGT 4725 Information Security Law and Policy
MGT 4726 Privacy, Technology, Policy, and Law
PHIL 3113 Logic and Critical Thinking  
PUBP 3000 Constitutional Issues (if not counted as a core course)  
PUBP 3016 Judicial Process (if not counted as a core course)  
PUBP 3610 Pre-Law Seminar (if not counted as a core course)  
PUBP 4111 Internet and Public Policy  
PUBP 4226 Business and Government  
PUBP 4314 Environmental Policy and Regulation  
PUBP 4440 Science, Technology, and Regulatory Policy  
PUBP 4512 Politics of Telecommunications Policy  
PUBP 4609 Legal Practice (if not counted as a core course)  
PUBP 4620 Environmental Law  
PUBP 4640 Technology Law, Policy, and Management  
PUBP 4650 Internet Law  
PUBP 4652 OLA Legal Internship  
PUBP 4725 Information Security Policy and Law  
PUBP 4726 Privacy, Technology, Policy, and Law  
PUBP 6330 Environmental Law  

5. A motion was made to approve a request from the School of Public Policy for a minor modification. This motion was seconded and approved.

**Minor Modification – APPROVED**

**Minor in Law, Science, and Technology**

Cybersecurity and legal/policy issues in information security are a high priority in society, business, and the Georgia Tech curriculum. New legal standards governing privacy are evolving rapidly, and these two courses (taught in conjunction with Computing and Business) provide students with a firm foundation in legal analysis in this realm.

**Add:**

- PUBP 4725 / MGT 4725 / CS 4725: "Information Security Policy and Law." This course includes coverage of relevant US laws and discusses how cybersecurity policies and practices are constrained or enabled by law.

- PUBP 4726: "Privacy, Technology, Policy and Law" -- New Course Proposal is being made contemporaneously. MGT 4726 and CS 4726 are already approved for the LS&T minor and Pre-Law Certificate.

**Electives: Choose four (4)**

CS 4010 Introduction to Computer Law  
CS 4280 Survey of Telecommunications and the Law
CS 4725 Information Security Law and Policy
CS 4726 Privacy, Technology, Policy, and Law
ECON 4300/4301 Economics of Information, Transaction Costs and Contracts
ECON 4320/4321 Economics of Technology, Innovation, and Entrepreneurship
ECON 4370 Law and Economics
HTS 3002 History of American Business
HTS 3006 United States Labor History
HTS 3085 Law, Technology, and Politics
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MGT 3605 Principles of Commercial Law
MGT 3606 International Business Law
MGT 3608 Technology Law and Ethics
MGT 3609 Legal Aspects of Real Estate
MGT 3614 Law for Entrepreneurs
MGT 4010 Business Taxation
MGT 4725 Information Security Law and Policy
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PUBP 4650 Internet Law
PUBP 4652 OLA Legal Internship
PUBP 4725 Information Security Policy and Law
PUBP 4726 Privacy, Technology, Policy, and Law
PUBP 6330 Environmental Law

6. A motion was made to approve a request from the School of Public Policy for a minor modification. This motion was seconded and approved.

Minor Modification – APPROVED

Minor in Political Science
The School of Public Policy requests the following changes to the Political Science minor:

**Add:**
- PHIL 3050  Political Philosophy
- PUBP 3141  Leading Change in Social Organizations

**Remove (deactivated courses):**
- PUBP 2014
- PUBP 3010
- PUBP 3200
- PUBP 3212
- PUBP 4314
- PUBP 4512

The Political Science minor must comprise at least 15 semester hours, of which at least 12 semester hours are upper-division coursework (numbered 3000 or above).

**Course List**

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<td>Required Courses</td>
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<td>select five of the following: ¹</td>
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- **INTA 2210**  Pol Phil & Ideologies
- **POL 2101**  State & Local Government
- **PUBP 2012**  Foundation-Public Policy
- **PUBP 2014**  Remove (deactivated 200702)
- **PUBP 3000**  US Constitutional Issues
- **PUBP 3010**  Remove (deactivated 200502)
- **PUBP 3016**  Judicial Process

**ADD:**  PUBP 3050  Political Philosophy

**ADD:**  PUBP 3141  Leading Change in Social Organizations

**ADD:**  PUBP 3200  Remove (deactivated 200102)
PUBP 3201  Intro to Social Policy
PUBP 3212  Remove (deactivated 200702)
PUBP 3214  African-Amer Politics
PUBP 4120  Survey Research Methods
PUBP 4200  Social Policy Issues
PUBP 4212  Women and Public Policy
PUBP 4226  Business and Government
PUBP 4314  Remove (deactivated 200702)
PUBP 4410  Science, Tech & Pub Policy
PUBP 4416  Critical Issues – Sci &Tech
PUBP 4512  Remove (deactivated 200702)
PUBP 4514  Mass Communications Pol

Total Credit Hours 15

1 Select at least 12 credit hours of upper-division coursework (numbered 3000 or above). A student may seek permission from the School of Public Policy to allow 3 credit hours of upper division coursework taught outside the School to count toward the completion of the minor if that coursework is clearly relevant to Political Science.

- A course may not be used to satisfy the requirements of more than one minor or certificate.
- All courses counting toward the minor must be taken on a letter-grade basis.
- All courses used to satisfy the course requirements for a minor must be completed with a grade of C (2.00) or better.
- A maximum of 6 credit hours of Special Topics courses may be included in a minor program or the student may complete 3 credit hours of Special Topics and 3 credit hours of either Special Problems or Undergraduate Research. Students may not use 6 credit hours of either Special Problems or Undergraduate Research for a minor.
- A maximum of 3 credit hours of transfer credit may be used to satisfy the course requirements for a minor. This includes courses taken at another institution or credit earned through the AP or IB program, assuming the scores meet Georgia Tech minimum standards.
It is the **major advisor’s responsibility** to verify that students are using only courses from the designated block(s) from the student’s major field of study that are allowed to satisfy a minor program, that they are not using any Core Area A-E courses (including humanities and social sciences), and that they are not using any courses for more than one minor or certificate. Any free elective course used to satisfy the course requirements of the student’s major degree program may also be used to satisfy the course requirements for a minor.

**A motion was made to approve a request from the School of Public Policy for a certification modification. This motion was seconded and approved.**

**Note:** The Committee questioned why minor modifications needed the approval of IUCC and Academic Senate. The Registrar explained that minors are sent to the Board of Regents and have guidelines which must be met. They are also listed in the Institute catalog, so any modifications must be vetted by the IUCC and Academic Senate.

**Certificate Modification – APPROVED**

**Political Science Certificate**

The School of Public Policy requests the following changes for the Political Science certificate:

**Add:**
- PHIL 3050  Political Philosophy
- PUBP 3141  Leading Change in Social Organizations

The certificate in Political Science requires twelve hours of coursework (at least nine hours at the 3000 level), chosen in consultation with the faculty coordinator.

7. A motion was made to **approve** a request from the Department of Naval Sciences for a new minor. This motion was seconded and approved.

**New Minor – APPROVED**

**Minor in Naval Sciences**
Overview

The Naval Science minor seeks to establish credit for NROTC students for work already required. Some undergraduate majors require enough electives to allow for minors to be built in; most do not. Over 80% of NROTC students are in STEM majors with the majority of those in the College of Engineering. The additional academic load imposed on these students through their NROTC commitment is sizeable. Student demand for credit for Naval Science classes as a minor is substantial as students want credit for work they complete. The establishment of a Naval Science minor is also intended to attract civilian students to Naval Science courses. The added diversity of thought and student backgrounds in class discussions will add an immeasurable dynamic to the efficacy of courses.

Navy Option Midshipmen (those training to become officers in the United States Navy) are required by the NROTC program to complete 24 credit hours of Naval Science courses to earn a commission in the Navy. Marine Corps Option Midshipmen (those training to become officers in the United States Marine Corps) are required to complete 18 credit hours of Naval Science courses to earn a commission in the Marine Corps. All NROTC students who successfully complete all required credit hours of Naval Science classes will be eligible for the minor, if the student so desires. Declaration of the minor will occur with the assistance of the students’ NROTC academic advisors. Consummate with requirements for other minors, only 15 credit hours of the NROTC required credit hours will count towards the minor with the correct requisite number of upper and lower division credit completed. This minimum number of credit hours facilitates the completion of the minor by students who do not participate in the NROTC program. All students wishing to complete a Naval Science minor must declare through their academic advisor.

The minor will familiarize the student with basic and advanced concepts of Naval Science with emphasis on naval history, technology, and leadership. The Institute’s motto of “Progress and Service” is embodied in military service. This minor will support the students who plan to serve their country by recognizing their academic achievement outside of their major coursework. The minor will also give students who do not pursue military service a basic working knowledge of the United States Navy and Marine Corps. Concepts learned complement any chosen career path.
Learning Outcomes

1. Demonstrate knowledge in specific areas of naval science. Achieve a basic level of knowledge required to begin follow-on career training in surface warfare, submarine warfare, aviation, and Marine Corps operations.

2. Apply critical thinking to leadership, management, and ethics problems.

3. Intelligently discuss, at a level expected of all military officers, naval history, engineering, warfare, military technology, and a breadth of general military knowledge topics.

4. Better execute the duties of the office of which they take charge in the Navy or Marine Corps, if commissioning as officers. Civilian students not seeking military service after graduation will be educated in military topics outside their majors that will enrich and complement any career path.

The success of the Naval Science Minor will be determined by specific graded assignments and examinations in the courses taken by students. Interviews are conducted twice per semester with each NROTC Midshipman during which personal progress and general content of the Naval Science courses are discussed. Course critique forms are utilized at the end of each semester to improve the next iteration of the course.

Curriculum

A minimum of 9 credit hours of upper-division coursework must constitute the required 15 credit hours of minor coursework. Students may not repeat any course for double credit. Courses may be taken in any order, but students are highly encouraged to complete NS 1321 before enrolling in any other courses.

Courses eligible for minor:

1000 level
NS 1321: Introduction to Naval Science (3 credit hours)
This course is an introduction and orientation class designed to give students a broad overview of the roles of the U.S. Navy and Marine Corps. This course also provides an introduction to the structure, terminology, customs, and uniforms of the Navy and Marine Corps.

NS 1323: Naval Maritime History (3 credit hours)
This course surveys U.S. Naval history from its European origin to the present with emphasis on major developments and the geographical forces shaping these developments. The course also covers present day concerns on sea power and maritime affairs, including the economic and political issues of maritime commerce, the law of the sea, and the rise and decline of the Soviet Navy.
2000 level
NS 2321: Naval Leadership and Management (3 credit hours)
Survey of managerial functions, communication, and major theories of leadership and motivation applied to the Navy organization. The course culminates with focus on naval core values.

NS 2323: Navigation (3 credit hours)
This course develops and broadens the student’s understanding of basic piloting and the laws of vessel operations by applying the fundamentals of navigation at sea.

3000 level
NS 3325: Naval Weapon Systems (3 credit hours)
This course develops and broadens the student’s understanding of basic engineering concepts and principles as applied to naval weapon systems, with a focus on sensors and weapon delivery.

NS 3326: Naval Systems Engineering (3 credit hours)
This course develops and broadens the student’s understanding of basic engineering concepts and principles as applied to naval engineering.

NS 3323: Evolution of Warfare (3 credit hours)
A historical exploration of warfare practiced by great nations. Selected campaigns are studied with emphasis on leadership, evolution of tactics, weaponry, and principles of war.

4000 level
NS 4320: Naval Operations (3 credit hours)
This course develops and broadens the student’s understanding of relative motion, surface ship operations, and naval command, control, and communications.

NS 4323: Amphibious Warfare (3 credit hours)
A historical exploration of warfare practice by great nations. Selected campaigns are studied with emphasis on leadership, evolution of tactics, and principles of war.

NS 4322: Naval Leadership and Ethics (3 credit hours)
Study of Naval values and ethics to include core values, Navy regulations, and military law. Duties and responsibilities of a junior naval officer.

8. A motion was made to approve a request from the College of Computing for a degree modification. This motion was seconded and approved.

Degree Modification – APPROVED
This vote was not unanimous. There were 10 votes to approve, 2 votes to deny, and 0 votes to abstain.

Bachelor of Science in Computer Science (all Threads)
Overview

The current program for the BSCS degree with the junior design class is 126 hours. The new CREATE-X option will be a total of 9 hours with 6 hours completing CREATE-X classes and an additional 3 hours to meet the Technical Communication requirement. The additional 3 hours can be used as free elective credits toward the 126 hours for the degree.

This request was recommended by the CoC UCC. CREATE-X is a major strategic initiative across multiple Georgia Tech colleges. Start-up lab had 16 CS and CM students enrolled Fall 2016 and has grown to 26 students for Fall 2017.

Student interest and success in start-ups has driven the need to provide opportunities for students to develop their ideas. Partnering with the CREATE-X program provides students with resources to build entrepreneurial confidence as part of their junior design experience. A CREATE-X option for students will give them access to in-class lectures learning the basics of startups, in-field research and networking, faculty mentors and guidance, and seed funding to build functional prototypes of their ideas.

Students currently have three options for satisfying Junior Design: Project Design and Project Implementation (6 hours), VIP option (8 hours), or Research Option (11 hours). The request is to add a fourth option with CREATE-X for 9 hours.

Students using Create-X for junior design take at least 6 hours of CREATE-X Start-up Lab and Idea 2 Prototype (I2P) and 3 of those 6 hours must be I2P. Students would take these 6 hours with LMC 3403 to satisfy their Technical Communication requirement.

Notes:

- Start-up Lab students learn the process of evidence-based entrepreneurship and how to systematically vet idea and validate market need.

- Idea to Prototype gives students the opportunity to build functional prototypes of their ideas.

- If a student begins one option, and changes her/his mind, she/he will have to start and complete a different alternative (no mixing of junior design options).
Curriculum

Below is an example of adding CREATE-X to the Modeling Simulation & Devices thread combination for the BSCS degree. Please apply the CREATE-X option to all 28 thread combinations.

1. Devices and Information Internetworks
2. Devices and Intelligence
3. Devices and Media
4. Devices and Modeling Simulation
5. Devices and People
6. Devices and Systems Architecture
7. Devices and Theory
8. Information Internetworks and Intelligence
9. Information Internetworks and Media
10. Information Internetworks and Modeling Simulation
11. Information Internetworks and People
12. Information Internetworks and Systems Architecture
13. Information Internetworks and Theory
14. Intelligence and Media
15. Intelligence and Modeling Simulation
16. Intelligence and People
17. Intelligence and Systems Architecture
18. Intelligence and Theory
19. Media and Modeling Simulation
20. Media and People
21. Media and Systems Architecture
22. Media and Theory
23. Modeling Simulation and People
24. Modeling Simulation and Systems Architecture
25. Modeling Simulation and Theory
26. People and Systems Architecture
27. People Theory
28. Systems Architecture and Theory

Example- Bachelor of Science in Computer Bachelor of Science in Computer Science - Thread: Modeling - Simulation & Devices

- Overview
- Requirements
- Designators and Options

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<td>or APPH 1050</td>
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**Major Requirements**

Undergraduate Curriculum Committee
Minutes, September 05, 2017
9/22/2017 2:42 PM
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2340</td>
<td>Objects and Design</td>
<td>3</td>
</tr>
<tr>
<td>CS 4001</td>
<td>Computing, Society, and Professionalism</td>
<td>3</td>
</tr>
<tr>
<td>or CS 4002</td>
<td>Robots and Society</td>
<td></td>
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</table>

**Junior Design Options (Capstone)**

**Junior Design Option**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

**Concentration**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CS 1171</td>
<td>Introductory Computing in MATLAB</td>
<td>1</td>
</tr>
<tr>
<td>CS 2110</td>
<td>Computer Organization and Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 2200</td>
<td>Computer Systems and Networks</td>
<td>4</td>
</tr>
<tr>
<td>CS 3251</td>
<td>Computer Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 3510</td>
<td>Design and Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>or CS 3511</td>
<td>Design and Analysis of Algorithms, Honors</td>
<td></td>
</tr>
<tr>
<td>ECE 2031</td>
<td>Digital Design Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>MATH 2552</td>
<td>Differential Equations</td>
<td>4</td>
</tr>
</tbody>
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Select one of the following for Building Devices:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3651</td>
<td>Prototyping Intelligence Appliances</td>
<td>4</td>
</tr>
<tr>
<td>ECE 4180</td>
<td>Embedded Systems Design</td>
<td></td>
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</tbody>
</table>

Select one of the following for Devices in the Real World:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CS 3630</td>
<td>Introduction to Perception and Robotics</td>
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</tr>
<tr>
<td>CS 4261</td>
<td>Mobile Applications and Services for Converged Networks</td>
<td></td>
</tr>
<tr>
<td>CS 4605</td>
<td>Mobile and Ubiquitous Computing</td>
<td></td>
</tr>
<tr>
<td>CS 4476</td>
<td>Introduction to Computer Vision</td>
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</tbody>
</table>

Select two of the following for Computational Science and Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 4641</td>
<td>Machine Learning</td>
<td>6</td>
</tr>
<tr>
<td>CX 4140</td>
<td>Computational Modeling Algorithms</td>
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</tr>
<tr>
<td>CX 4220</td>
<td>Introduction to High Performance Computing</td>
<td></td>
</tr>
<tr>
<td>CX 4230</td>
<td>Computer Simulation</td>
<td></td>
</tr>
<tr>
<td>CX 4640</td>
<td>Numerical Analysis I</td>
<td></td>
</tr>
</tbody>
</table>

**Other Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 3012</td>
<td>Applied Combinatorics</td>
<td>3</td>
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</tbody>
</table>

Select one of the following: 3
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 3215</td>
<td>Introduction to Probability and Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH 3670</td>
<td>Probability and Statistics with Applications</td>
<td></td>
</tr>
<tr>
<td>CEE 3770</td>
<td>Statistics and Applications</td>
<td></td>
</tr>
<tr>
<td>ISYE 3770</td>
<td>Statistics and Applications</td>
<td></td>
</tr>
<tr>
<td>or ISYE 2027</td>
<td>Probability with Applications and Basic Statistical Methods</td>
<td></td>
</tr>
<tr>
<td>&amp; ISYE 2028</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Free Electives**

Free Electives 11

**Total Credit Hours** 126

**Course List**

Pass-fail only allowed for Free Electives (max 6 credit hours), CS 1100, and CS 1171 (if required)

Minimum grade of C required.

Two of three labs MUST be a sequence.

Junior Design Options are as follows (students must pick one option and may not change):

- Option 1 - LMC 3432, LMC 3431, CS 3311, CS 3312.
- Option 2 - ECE VIP courses and LMC 3403.
- Option 3 - Satisfy Georgia Tech Research Option
- Option 4 - CS 2701 (3 hours), CS 4699-I2P (3 hours), LMC 3403 (3 hours) = 9 hours OR CS 4699- I2P (6 hours), LMC 3403 (3 hours) = 9 hours

Six credits of the Junior Design option are used as Major Requirements and the average credits of research/VIP (5 credit hours/2 credit hours) may be used as free electives. Students completing VIP for their junior design requirement will be required to complete at least three semesters of VIP. (VIP 1 + VIP 2 + VIP 3) for a total of 5 credit hours + LMC 3403 = 8 hours of VIP credit.

Students using CREATE-X for junior design take at least 6 hours of CREATE-X Start-up Lab and Idea 2 Prototype (I2P) and 3 of the 6 hours must be I2P. Students take these 6 hours with LMC 3403 (3 hours) for a total of 9 hours. Extra three hours for CREATE-X option can be used in free electives.

Two credit hours of MATH 1554 may count along with MATH 2550 to give Area F 18 credit hours.

**Note:** The Committee expressed concern over how the unit will ensure that the Create-X projects remain related to Computer Science to uphold the integrity of the degree. David White (CoC) explained that the Junior Design option may be ‘patchy’, but that experiential learning is important to the program. He went on to mention that the teams typically work themselves out by assigning members to tasks related to each member’s specialty.

**Discussion/Informational Items**

1. Dr. Mike Goodisman (BIOS-BIOL) addressed the Committee on a forthcoming proposal for three new degrees from the School of Biological Sciences.
• Bachelor of Science in Marine and Environmental Biology
• Bachelor of Science in Biomedical Sciences
• Bachelor of Science in Molecular Biology and Biotechnology

The School of Biological Sciences is bringing forth three specialized degrees as a way to meet need and demand of a workforce which is calling for more specialized training and students who desire a major focused explicitly on their career paths. The unit noted that the BS in Biology would remain an active degree for the time being.

**Note:** The Committee had several comments and questions about proposing the three new degrees. It was suggested that the unit return to the next Committee meeting to discuss the proposals further. The comments/questions are as follows:

- The Committee requested more information and justification on how the programs are non-duplicative.
  - What makes these degrees “Georgia Tech” degrees?
  - More explanation on why these degrees are needed and why at Georgia Tech?
- There should be more specifics on how year 3 and year 4 are different in content than the existing BS in Biology program.
- If these degrees produce unexpected growth, how will the unit handle it? (An example used is Computer Science and the tremendous growth it has experienced with limited resources).
- Committee members questioned a comment about reviving dormant courses.
  - How long have the courses been dormant?
  - Why are they dormant?
- The Committee suggested going to professional societies for hard data.

There was general discussion about sustainability since enrollment at Tech is not projected to increase in the foreseeable future given that current programs will also be kept active. If the program in the initial five years of existence is not able to reach enrollment goals, there could be some difficult questions raised about its future.

It was noted that most programs should have similar enough coursework to complete for the first two years so as to allow students the ability to graduate within a reasonable timeframe if they happen to switch majors.

2. The IUCC was asked to discuss certificates and how they currently operate. The approval of new NCAA legislation on certificates now allows the use of courses
towards certificates for eligibility (athletes must be enrolled in courses which show progress toward a degree/program). This has generated some additional interest in how we currently handle these credentials. There was discussion on locating all approved certificates and moving these over to a comprehensive list in the Catalog.

The Registrar’s Office has compiled a list of certificates which has been documented on the ICC site indicating which new certificates and/or certificate modifications have been submitted to the Committee. More work needs to be done to make sure the information on Certificates is complete, then some decisions may be necessary on how we handle them operationally.

Questions for the Committee to consider regarding certificates are:

- Do we have a complete list of all Certificates that have been approved by the IUCC? Since they are not listed in the Catalog, do we need a new way to account for them, all in one place?
- Is double counting of credit between certificates and degrees or minors acceptable?
- Should Georgia Tech still offer certificates?
- What should the institution do with current certificates?

Adjourned,

Reta Pikowsky, Registrar
Secretary