# **BS IN INNOVATION, TECHNOLOGY AND DESIGN**

#### **Overview**

The **BS** in Innovation, Technology and Design, a multi-disciplinary degree program, is a unique University-wide program that will prepare graduates at the intersection of design, innovation, technology and entrepreneurship. Stewarded by the College of Engineering, with cooperation across the University, the new Bachelor of Science degree program is designed to create entrepreneurial-minded, experienced graduates who will tackle the complexities of real-world challenges and opportunities and translate ideas into sustainable, high-impact ventures. The students will be equipped to effectively integrate concepts from business, art and creativity, ethics, law, and engineering and draw on design tactics for innovation and problem solving. A critical component of this new degree is that most courses are team taught by faculty from multiple disciplines. The students will learn and innovate through experiential design challenges provided by industry partners every semester, and embedded internships and/or civic engagement.

#### **Curriculum Requirements**

### 105   First-Year Writing I   STEM   3	Code	Title	Credit Hours
MRS 105   First-Year Writing I   STEM   30   30   30   30   30   30   30   3	GENERAL EDUCATION REQUIREMENTS		
NRS 107	Written Communication Skills:		
Quantitative Skills:         Calculus I         4           WTH 161         Calculus II         4           Areas of Knowledge:         4         5           Art & Humanities Cognate         9           People & Society Cognate         9           Feore Cognate         9           Feore Cognate           Cognate         9           Cognate         0           Cognate         0           Cognate         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	WRS 105	First-Year Writing I	3
MTH 161 Calculus I or MTH 162 Calculus II Areas of Knowledge:  Arts & Humanities Cognate People & Society Cognate STEM Cognate (9 credits) (fulfilled through the major)  MALOR COURSES  Core Course  CIM 112 Innovation Design CIM 112 Innovation Design CIM 112 Innovation Design CIM 113 Computing and Digital Solutions for the future CIM 114 Computing and Digital Solutions for the future CIM 125 Computing and Digital Solutions for the future CIM 126 Computing and Digital Solutions for the future CIM 127 Computing and Digital Solutions for the future CIM 128 Computing and Digital Solutions for the future CIM 129 Computing and Digital Solutions for the future CIM 129 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 121 Computing and Digital Solutions for the future CIM 125 Computing and Digital Solutions for the future CIM 127 Computing and Digital Solutions for the future CIM 127 Computing and Digital Solutions for the future CIM 127 Computing and Digital Solutions for the future CIM 129 Computing and Digital Solutions for the future CIM 129 Computing and Digital Solutions for the future CIM 129 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 Computing and Digital Solutions for the future CIM 120 C	WRS 107	First-Year Writing II: STEM	3
The Normal 162 Calculus II  Areas of Knowledge:  Areas of Knowledge:  Area of Calculus II  Area of Knowledge:  Area of Calculus II  Area of Knowledge:  Area of Knowledge:  Area of Calculus II  Area of Calculu	Quantitative Skills:		
Arts & Humanities Cognate	MTH 161	Calculus I	4
Arts & Humanities Cognate People & Society Cognate StEM Cognate (9 credits) (fulfilled through the major)  ***********************************	or MTH 162	Calculus II	
People & Society Cognate (9 credits) (fulfilled through the major)    MajOR COURSES	Areas of Knowledge:		
### Comparts (9 credits) (fulfilled through the major)  #### MAJOR COURSES  ### Core Courses  ### Comparison of Courses  ### Course Course  ### Course Course  ### Course Course  ### Course Course  ### Course ##	Arts & Humanities Cognate		9
MAJOR COURSES   Core Courses   Common to Provide	People & Society Cognate		9
Core Courses         Column 112         Innovation Design         3           ECRN 114         Global Challenges Addressed by Engineering and Technology         3           EGN 123         Computing and Digital Solutions for the future         3           EGN 123         Introduction to Entrepreneurship         3           EGN 263         Introduction to Entrepreneurship         3           EGN 275         Globalization and Society         3           EGN 284         Prototyping         3           EGN 295         Systems Analysis and Design         3           EGN 296         Systems Analysis and Design         3           EGN 297         Ethics, Equity and Responsibility         3           EGN 298         Ethics, Equity and Responsibility         3           EGN 299         Ethics, Equity and Responsibility         3           EGN 290         Ethics, Equity and Responsibility         3           Egretativity, the Creative Process, and Innovation (NEW COURSE)         3           Energing Technologies (NEW COURSE)         15           Energing Sustainability (NEW COURSE)         15           Emerging Technologies (NEW COURSE)         15           Emerging Technologies (NEW COURSE)         15           Clif 202         User Experience Des	STEM Cognate (9 credits) (fulfilled through the major)		
Innovation Design   3   3   3   3   3   3   3   3   3	MAJOR COURSES		
Global Challenges Addressed by Engineering and Technology 39 GEN 123 Computing and Digital Solutions for the future 39 MGT 253 Introduction to Entrepreneurship 39 GCN 305 Globalization and Society 39 GCN 121 Prototyping 39 GCN 305 Globalization and Society 30 GCN 305 Globalization and Society 30 GCN 305 GLOM 121 Prototyping 30 GCN 305 GCN 305 Greativity in the Creative Process, and Innovation (NEW COURSE) Freativity, the Creative Process, and Innovation (NEW COURSE) Gelect 5 additional courses with advisor approval including the following: Informed Design: Sustainability (NEW COURSE) The Design Team in Society (NEW COURSE) Current Practices in Software Development (NEW COURSE) Digital Infrastructure and Cybersecurity (NEW COURSE) CIM 202 User Experience Design ACC 211 Principles of Financial Accounting MKT 301 Marketing Foundations FIN 300 Fundamentals of Finance for Non-Finance Majors Other courses by approval  DESIGN CHALLENGES TD 124 Design Challenges 1 2 Design Challenges 3 4 (Empathize and Design) GCN 305 GCN 305 GCN 305 GLOM 205 GCN 307 GCN	Core Courses		
EGN 123         Computing and Digital Solutions for the future         3           MGT 253         Introduction to Entrepreneurship         3           SCO 305         Globalization and Society         3           CIM 121         Prototyping         3           SIM 121         Prototyping         3           MGT 356         Systems Analysis and Design         3           MGT 354         Growing the New Venture         3           TD 220         Ethics, Equity and Responsibility         3           Creativity, the Creative Process, and Innovation (NEW COURSE)         3           Approved Electives         15           Select 5 additional courses with advisor approval including the following:         15           Informed Design: Sustainability (NEW COURSE)         15           Emerging Team in Society (NEW COURSE)         15           Current Practices in Software Development (NEW COURSE)         15           Current Practices in Software Development (NEW COURSE)         15           Digital Infrastructure and Cybersecurity (NEW COURSE)         15           CIM 202         User Experience Design           ACC 211         Marketing Foundations           FIN 300         pundamentals of Financial Accounting           MKT 301         Marketing Foundations	CIM 112	Innovation Design	3
MGT 253 Introduction to Entrepreneurship 3 SOC 305 Globalization and Society 3 SOC 305 Globalization and Society 3 SOC 305 Slobalization a	EGN 114	Global Challenges Addressed by Engineering and Technology	3
Since 305   Globalization and Society   Since 306   Globalization and Society   Since 307   Since 308   Since 308   Systems Analysis and Design   Since 308   Systems Analysis and Design   Since 308   Systems Analysis and Design   Since 308   Stream 308   Stream 308   Stream 308   Stream 308   Stream 308   Stream 309   Stream 3	EGN 123	Computing and Digital Solutions for the future	3
CIM 121 Prototyping 3 BTE 360 Systems Analysis and Design 3 MGT 354 Growing the New Venture 3 TD 220 Ethics, Equity and Responsibility 3 Creativity, the Creative Process, and Innovation (NEW COURSE) 3 Approved Electives 5 Elect 5 additional courses with advisor approval including the following:  Informed Design: Sustainability (NEW COURSE) The Design Team in Society (NEW COURSE) Emerging Technologies (NEW COURSE) Emerging Technologies (NEW COURSE) Current Practices in Software Development (NEW COURSE) Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design ACC 211 Principles of Financial Accounting MKT 301 Marketing Foundations FIN 300 Fundamentals of Finance for Non-Finance Majors Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2 Design Challenges 3 4 (Empathize and Design) 6	MGT 253	Introduction to Entrepreneurship	3
Systems Analysis and Design 33 MGT 354 Growing the New Venture 33 TD 220 Ethics, Equity and Responsibility 33 Creativity, the Creative Process, and Innovation (NEW COURSE) 34 Approved Electives 56 Eelect 5 additional courses with advisor approval including the following: 57 Eelect 5 additional courses with advisor approval including the following: 58 Eelect 5 additional courses with advisor approval including the following: 58 Eelect 5 additional courses with advisor approval including the following: 58 Emerging Teann in Society (NEW COURSE) 58 Emerging Technologies (NEW COURSE) 58 Emerging Technologies (NEW COURSE) 59 Eight Infrastructure and Cybersecurity (NEW COURSE) 59 Digital Infrastructure and Cybersecurity (NEW COURSE) 59 Eight Structure and Cybersecurity (NEW COURSE) 69 ACC 211 Principles of Financial Accounting 69 MKT 301 Marketing Foundations 69 FIN 300 Fundamentals of Finance for Non-Finance Majors 79 Other courses by approval 79 ESIGN CHALLENGES 70 TD 120 Design Challenges 1 2 66 TD 134 Design Challenges 3 4 (Empathize and Design) 66 Edit of the course	SOC 305	Globalization and Society	3
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Ethics, Equity and Responsibility  Creativity, the Creative Process, and Innovation (NEW COURSE)  Select 5 additional courses with advisor approval including the following:  Informed Design: Sustainability (NEW COURSE)  The Design Team in Society (NEW COURSE)  Emerging Technologies (NEW COURSE)  Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations  FIN 300 Marketing Foundations  FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6 Course of Principles and Design Challenges 3 4 (Empathize and Design)	BTE 360	Systems Analysis and Design	3
Approved Electives Select 5 additional courses with advisor approval including the following:  Informed Design: Sustainability (NEW COURSE) The Design Team in Society (NEW COURSE) Emerging Technologies (NEW COURSE) Current Practices in Software Development (NEW COURSE) Digital Infrastructure and Cybersecurity (NEW COURSE) CIM 202 User Experience Design ACC 211 Principles of Financial Accounting MKT 301 Marketing Foundations FIN 300 Fundamentals of Finance for Non-Finance Majors Other courses by approval  DESIGN CHALLENGES TD 120 Design Challenges 1 2 Design Challenges 3 4 (Empathize and Design) 6 DESIGN CHALLENGES TD 134  Design Challenges 3 4 (Empathize and Design)	MGT 354	Growing the New Venture	3
Approved Electives  Select 5 additional courses with advisor approval including the following:  Informed Design: Sustainability (NEW COURSE)  The Design Team in Society (NEW COURSE)  Emerging Technologies (NEW COURSE)  Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202  User Experience Design  ACC 211  Principles of Financial Accounting  MKT 301  Marketing Foundations  FIN 300  Other courses by approval  DESIGN CHALLENGES  TD 120  Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	ITD 220	Ethics, Equity and Responsibility	3
Select 5 additional courses with advisor approval including the following:  Informed Design: Sustainability (NEW COURSE)  The Design Team in Society (NEW COURSE)  Emerging Technologies (NEW COURSE)  Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations  FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Esign Challenges 3 4 (Empathize and Design)  6  6  6  6  6  6  6  6  6  6  6  6  6	Creativity, the Creative Process, and Innovation (NEW COU	RSE)	3
Informed Design: Sustainability (NEW COURSE)  The Design Team in Society (NEW COURSE)  Emerging Technologies (NEW COURSE)  Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations  FIN 300 Marketing Foundations  FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	Approved Electives		15
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Emerging Technologies (NEW COURSE)  Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations  FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	Informed Design: Sustainability (NEW COURSE)		
Current Practices in Software Development (NEW COURSE)  Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations  FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	The Design Team in Society (NEW COURSE)		
Digital Infrastructure and Cybersecurity (NEW COURSE)  CIM 202 User Experience Design  ACC 211 Principles of Financial Accounting  MKT 301 Marketing Foundations FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2 Design Challenges 3 4 (Empathize and Design)  6	Emerging Technologies (NEW COURSE)		
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FIN 300 Fundamentals of Finance for Non-Finance Majors  Other courses by approval  DESIGN CHALLENGES  TD 120 Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	ACC 211	Principles of Financial Accounting	
Other courses by approval  DESIGN CHALLENGES  TD 120  Design Challenges 1 2  TD 134  Design Challenges 3 4 (Empathize and Design)  6	MKT 301	Marketing Foundations	
DESIGN CHALLENGES  TD 120  Design Challenges 1 2  Design Challenges 3 4 (Empathize and Design)  6	FIN 300	Fundamentals of Finance for Non-Finance Majors	
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TD 134 Design Challenges 3 4 (Empathize and Design) 6	DESIGN CHALLENGES		
	ITD 120	Design Challenges 1 2	6
TD 256 Design Challenges 5 6 6	ITD 134	Design Challenges 3 4 (Empathize and Design)	6
	ITD 256	Design Challenges 5 6	6

ITD 278	Design Challenges 7 8	6
Design Challenge Capstone		
Design Challenge Capstone 1 (New Course)		6
Design Challenge Capstone 2 (New Course)		6
CIVIC/EMPLOYER ENGAGEMENT		12
Complete 12 credits from the following options:		
Internship		
Civic Engagement		
Total Credit Hours		120

The BS in Innovation, Technology and Design offers two plan of study options for students: an intensive three-year option or a traditional four-year option.

## Sample Plan of Study: Intensive Three-Year Option

Students who wish to complete the program in three years can follow the intensive plan of study below. Students in this option would need to complete two required summer internships.

Year One		
Fall		Credit Hours
WRS 105	First-Year Writing I	3
CIM 112	Innovation Design	3
EGN 114	Global Challenges Addressed by Engineering and Technology	3
EGN 123	Computing and Digital Solutions for the future	3
ITD 120	Design Challenges 1 2	6
	Credit Hours	18
Spring		
MTH 161 or 162	Calculus I or Calculus II	4
WRS 107	First-Year Writing II: STEM	3
MGT 253	Introduction to Entrepreneurship	3
SOC 305	Globalization and Society	3
ITD 134	Design Challenges 3 4 (Empathize and Design)	6
	Credit Hours	19
Summer		
Internship		6
	Credit Hours	6
Year Two		
Fall		
CIM 121	Prototyping	3
BTE 360	Systems Analysis and Design	3
MGT 354	Growing the New Venture	3
ITD 220	Ethics, Equity and Responsibility	3
ITD 256	Design Challenges 5 6	6
	Credit Hours	18
Spring		
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Creativity, the Creative Process, a	nd Innovation	3
ITD 278	Design Challenges 7 8	6
	Credit Hours	18
Summer		
Internship		6
	Credit Hours	6

Year Three		
Fall		
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Approved Elective		3
Design Challenge Capstone 1		6
	Credit Hours	18
Spring		
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Approved Elective		3
Design Challenge Capstone 2		6
	Credit Hours	18
	Total Credit Hours	121

## **Sample Plan of Study: Traditional Four-Year Option**

Students who wish to have the full four-year undergraduate experience can choose to extend the course requirements over four years, rather than three. Below is one example of how a student might do this. This would enable a student to study abroad during the third year or pursue a minor or other co-curricular activities. Students can work with their advisor to fit the 12-credit internship requirement into their customized plan of study.

Year One		0
Fall		Credit Hours
WRS 105	First-Year Writing I	3
CIM 112	Innovation Design	3
EGN 114	Global Challenges Addressed by Engineering and Technology	3
EGN 123	Computing and Digital Solutions for the future	3
ITD 120	Design Challenges 1 2	6
	Credit Hours	18
Spring		
MTH 161 or 162	Calculus I or Calculus II	4
WRS 107	First-Year Writing II: STEM	3
MGT 253	Introduction to Entrepreneurship	3
ITD 134	Design Challenges 3 4 (Empathize and Design)	6
	Credit Hours	16
Year Two		
Fall		
CIM 121	Prototyping	3
ITD 220	Ethics, Equity and Responsibility	3
MGT 354	Growing the New Venture	3
ITD 256	Design Challenges 5 6	6
Internship		3
	Credit Hours	18
Spring		
SOC 305	Globalization and Society	3
Creativity, the Creative Process	s, and Innovation	3
ITD 278	Design Challenges 7 8	6
Internship		3
	Credit Hours	15

Year Three		
Fall		
BTE 360	Systems Analysis and Design	3
A&H Cognate Course		3
P&S Cognate Course		3
P&S Cognate Course		3
Internship		3
	Credit Hours	15
Spring		
A&H Cognate Course		3
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Internship		3
	Credit Hours	15
Year Four		
Fall		
Approved Elective		3
Approved Elective		3
Design Challenge Capstone 1		6
	Credit Hours	12
Spring		
Approved Elective		3
Approved Elective		3
Design Challenge Capstone 2		6
	Credit Hours	12
	Total Credit Hours	121

### **Mission**

The BS in Innovation Technology & Design program, an initiative of the University of Miami New Century Education Incubator, will prepare students to research, analyze, prototype and design innovative products and processes from concept to launch.

### **Student Learning Outcomes**

- Students will be able to describe and employ various stages of the design-and-innovation process, from initial research to new concept generation and on to implementation.
- Students will be able to integrate social, technological and formal analysis in the design of innovative product, service, and system concepts.
- Students will be able to identify and characterize stakeholders surrounding technology innovation in relation to specific design concepts.
- Students will be able to conduct research and understand the expectations, experiences, and practices of technology users and key stakeholders.