Master of Technology in Intelligent Systems Capstone Project

Capstone Requirements (IS01 2020)

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Objectives of IS Capstone Project

- To design and develop an Intelligent System
- To apply the knowledge and technical skills you have/will learn in the Master of Technology programme in a practical/commercial situation.
- To make use of at least one of the IS problem-solving techniques which you have/will learn in the programme.
- To produce good documentation and reports describing the various aspects of system development.
- To describe and discuss the progress made during the project in a series of presentations.
- To deliver value to the sponsor company

Capstone Project Structure & Activities

Phase 0 (3.5 months)	Phase 1 (2months)	May	Phase 2 (4 months)
• Actively seek projects from your companies. • Discuss the feasibility with any IS lecturers • Prepare project proposal	• Domain familiarization • Knowledge/Data Acquisition • Project Planning • Problem Modeling • Exploratory Data Analysis • Initial Model/System Design • Prototype/PoC	Exam Break	• Development • Coding • Testing • Validation • Implementation • Demonstration

Project High-Level Schedule

	Hand-in Deliverables	Deadline
Phase 0 (Sep – Dec)	1. Team Project Proposal for formal approval	15 Dec 2019
Phase 1 (March – April)	1.A detailed **Project Proposal.** Include a Section on progress and updates 2.Present to ISS Assessors	24 April 29,30 April, 6:30-10:00pm
Phase 2 (June – Sept)	1.A well written **Technical Paper** (formatted as a publishable paper) 2.An **Individual Accomplishment Report** 3.Present to ISS Assessors	2 October 7,8 October 6:30-10:00pm

Note: Hand-in Deliverables (to Luminus) are usually 5 days before the Presentation

Finding Projects

- Employer organisations
  - Projects should ideally come from the team members
  - Team member can be the client representative or SME
- Student's pet project
  - Students are free to propose their own projects.
  - Develop an IS system or product for which you perceive there is a need. In this case, it is useful to find credible potential users of the product who are prepared to assist you in user requirements specification, testing and acceptance.
- ISS sponsored projects
  - Don't count on this because it is very limited and restricted

All project proposals must be submitted for approval.
Start discussing your preliminary ideas with any lecturer

Project Focus

- **Commercial oriented projects**: those that result in a working prototype or demonstration system (e.g. a diagnostic system, industrial automation robot & vision system, conversational robots, etc.)
- **R&D type projects**: those that perform an investigation or exploration (e.g. an investigation into the use of deep learning for predicting (say) tsunamis, or an investigation into the application of wearable IoT sensors to detect human movement disorders, etc.)

Types of Projects

Coursework	Potential Application Areas
Intelligent Reasoning Systems	**Build systems that problem solve across business & engineering domains** *e.g. IBM Watson, Geico instant online quotes*
Pattern Recognition Systems	**Build systems that recognise and take actions based on patterns found in data** *e.g. traffic data monitoring, smart appliances, surveillance data, social media*
Intelligent Software Agents	**Build software agents that act on behalf of humans in diverse transactions** *e.g. shopping bots, PDA's*
Intelligent Robotic Systems	**Build advanced robotics and automation systems** *e.g. cooperative robots, robot home helps, shopping assistants*
Intelligent Sensing Systems	**Build systems that make decisions based on visual, audio and speech inputs** *e.g. crowd monitoring, face recognition, medical sensing, vehicle control*
Practical Language Processing	**Build systems that understand and process natural language** *e.g. mine social media for sentiments, build intelligent chatbots*

Project Teams

- You are expected to form your own project teams
- Team composition:
  - All teams should consist of between 4-5 members
  - Students will not be permitted to change teams after the start of the project
- Each team is collectively responsible for successfully delivering a project
- Each team will be allocated an ISS Advisor

Responsibilities of Sponsors

- Provide supervisors who will be responsible for the project team
- SME who can articulate their knowledge to the students
- Make available all data that is required for the successfully completion of the project
- Work space and other necessary resources (including hardware and software) for the students
- Access to information and personnel required to complete the project

Project Conduct issues

- Projects can either be conducted at ISS or at the client-site depending on:
  - client (data) constraints
  - availability of tools and software packages
- You may be asked to sign confidentiality/non-disclosure agreements by you client company
  - You and your team should comply accordingly
- Sponsor companies have the exclusive right the own the IP originating from the project
- ISS has no intention to own any IP
  - However, ISS requires to the right to discuss your project for academic and learning purposes only

Capstone Project Assessment

- You will be graded by various ISS staff to ensure fairness and objectivity.

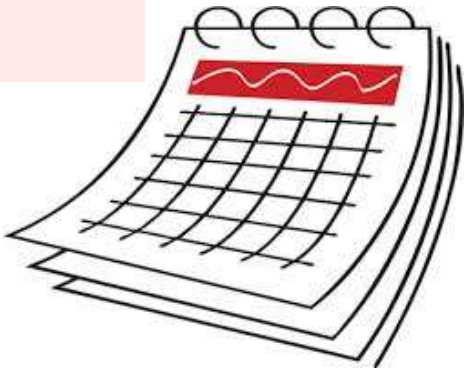
Assessment Components	Weightage
Phase 1	
Report	15%
Presentation	15%
Phase 2	
Technical Paper	20%
Presentation	20%
System Demo	20%
Sponsor/Panel Assessment	10%
Individual Accomplishment	Used to adjust your individual scores

Assessment Format (guide only)

Deliverable	Assessment Guides
Presentation	• Introduction, Conclusion • Organisation, Sequence and flow • Relevance, Completeness • Visual Aids, Clarity of explanation • Personal style • Handling of Q&A
Technical Paper and Reports	• Well written documentation of work • Flow/Grammar, Clarity • Substantial depth, Technical achievement • Appropriate References
Final System: Of type **Application**	• Complexity of problem • Innovativeness • Verification & Validation • Customer satisfaction/ Feedback • Overall functionality
Of type **Research**	• Complexity of problem • Novelty • Literature Review • Application of Methodology • Programmiing

Proposal Submission Schedule

Date	Activity
Start Now!	Begin seeking projects Discuss with lecturers for in-principle approval
1 December	Submit Draft proposal to ISS
31st December	ISS confirms all projects
1st March	Project formally begins Kickoff meeting



Questions and Answers